IBM

AS/400™

Data Communications Planning Guide

Overview of AS/400[1] Planning and Installation Guides

The manuals you need to help plan for and install your AS/400 system are listed below. The manuals are listed in the column on the left. In the right column you will find some of the tasks contained in each manual to assist you in choosing the planning and installation guides that best meet your needs.

Introduction	**General Information** Licensed Programs Devices Migration Aids
Migrating from System/36 Planning Guide or **Migrating from System/38 Planning Guide**	**Migration Planning** Application Programs User Files
Planning Guide - 9404 or **Planning Guide - 9406**	**AS/400 Pre-Installation Planning** Local Devices 5294, 5394 and 5251-12 Remote Controllers Electronic Customer Support
You are here ——▶ **Data Communications Planning Guide**	**Communications Planning** SDLC, Asynchronous Communications, BSC X.25 Network Token-Ring Networks Finance Remote Controllers 3174 and 3274 Remote Controllers Communications Controllers
Installation Guide - 9404 or **Installation Guide - 9406**	**Hardware Installation** Your service representative installs system hardware.
Licensed Programs Installation Guide	**System Installation** Operating System Licensed Programs Add Secondary Language Change Primary Language
Attaching Work Station and Communications Cables	**Attaching Cables** IBM 9404 and IBM 9406 Twinaxial and ASCII IBM Cabling System Telephone Twisted-Pair Communications Token-Ring Networks
Device Configuration Guide	**Device Configuration** Automatic Configuration Local Devices 5294, 5394, and 5251-12 Remote Controllers Electronic Customer Support
Communications: User's Guide	**Communications Configuration** SDLC, Asynchronous Communications, BSC X.25 Network Twinaxial Data Link Control Token-Ring Networks Finance Remote Controllers 3174 and 3274 Remote Controllers Communications Controllers

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1 Trademark of the International Business Machines Corporation.

Federal Communications Commission (FCC) Statement

Warning: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

DANGER

> **An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the customer's responsibility to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.**
>
> 1. **When installing the system, before installing signal cables, ensure that the power cords for all devices are unplugged.**
> 2. **When adding any additional devices to the system, ensure that the power cords for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cords from the existing system before you add a device.**

DANGER

> **During an electrical storm, do not connect cables or station protectors for communications lines, display stations, printers, or telephones.**

DANGER

> **Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical grounds.**

This equipment is Class 1 Equipment (information equipment to be used in commercial and industrial districts) which is in conformance with the standard set by Voluntary Control for Interference by Data Processing Equipment and Electronic Office Machines (VCCI) with an aim to prevent radio interference in commercial and industrial districts.

This equipment could cause interference to radio and television receivers when used in and around residential districts.

Please handle the equipment properly according to the instruction manual.

About This Guide

This manual may refer to products that are announced, but are not yet available.

Who Should Use This Guide

The person using this guide should have data communications experience. This guide is intended for people responsible for:

- Ordering communications facilities.
- Installing communications.
- Configuring communications lines, communications controllers, and communications devices.

ATTENTION:

If your communications line(s) will only be used for either of the following purposes, you must go to the *Planning Guide — 9406*, GA21-9913 or the *Planning Guide — 9404*, GA21-9914, and complete all the planning tasks described in the communications chapter.

- Electronic customer support
- 5294, 5394, or 5251 remote controllers and work stations attached to a communications line

How This Guide Should Be Used

This guide should be used at initial order time and system upgrade time. To help you in completing the planning tasks, planning forms have been designed to make the process of gathering important information easy. The information you record on the forms is determined by the kind of communications types you have chosen to use on your AS/400 system.

Note: If you do not recall which communications types you ordered for your system, see the System Information Form from your *Planning Guide — 9406* or *Planning Guide — 9404*.

The information on these planning forms enables you to:

- Order telephone lines from a common carrier and modems from a modem supplier using the F forms.
- Do communications configuration planning using the G forms.

How This Guide Is Organized

This manual is arranged in three parts. When all parts are completed, you will have done the necessary planning for every communications line or network on your AS/400 system. The list below describes the organization of this manual:

Part 1   Explains how to use the *Data Communications Planning Guide* and how to complete the communications planning forms.

Part 2   Consists of five tasks and steps you through the process of filling out the communications planning forms.

Part 3   Explains what to do with your completed communications planning forms.

Appendix A   Contains blank planning forms that are used by the person doing the data communications planning.

Appendix B   Contains a communications hardware and configuration overview. This appendix would be helpful to IBM field personnel and to customers with data communications experience.

Related Printed Information

The person who has the job of planning the installation of the AS/400 system should have the manual *Planning Guide — 9406*, GA21-9913, or *Planning Guide — 9404*, GA21-9914.

You should have read or have the equivalent knowledge of the first three chapters of the manual *Data Communications Concepts*, GC21-5169.

The *Data Communications Planning Guide* may refer to products that are announced, but are not yet available. Such information is for planning purposes only and is subject to change before general availability.

The planning forms that you complete using this guide will assist you during configuration of your system. The forms will be used in conjunction with the *Communications: User's Guide*, SC21-9601 or the *Device Configuration Guide*, SC21-8106.

If You Need More Information

If you do not have enough information to complete all the tasks in this manual, contact your IBM Technical Support Center.

Contents

Part 1. Using Your Communications Planning Guide

ATTENTION: If you are planning *only* for AS/400[1] electronic customer support, go to Chapter 4 of the *Planning Guide — 9406*, GA21-9913 or *Planning Guide — 9404*, GA21-9914. If you are doing the planning for 5294, 5394, or 5251 remote controllers attached to a communications line, go to Chapter 6 of the *Planning Guide — 9406* or the *Planning Guide — 9404* to complete that task.

Completing Part 1 of this manual gives you the necessary background to complete Parts 2 and 3. Part 1:

* Identifies the communications types available on the AS/400 system.
* Identifies the different communications planning forms.
* Explains the purpose of each set of communications planning forms.

This guide should be used to plan to install or upgrade your system. It is recommended that the planning activities be completed before your system arrives so that you can install the system and the communications lines at the same time.

Learning about the Communications Types Available on the AS/400 System

These communications types are available on the AS/400 system:

* Synchronous data link control (SDLC)
* Binary synchronous communications (BSC)
* Asynchronous communications (Async)
* X.25 communications network
* IBM Token-Ring communications network (TRLAN)

This guide is designed so that you complete the planning for one communications line at a time, regardless of the number of communications lines that you might have on your system.

Check the System Information Form to see which communications types are ordered for your system. If you find that you need communications types different from those ordered, contact your marketing representative.

Note: The System Information Form is the form you completed before doing the planning work in the *Planning Guide — 9406* or the *Planning Guide — 9404*.

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[1] AS/400 is a trademark of the International Business Machines Corporation.

Learning about Communications Planning Forms F and G

You have to complete an F and a G planning form for each communications line you intend to have on your system before it arrives.

The F Planning Forms

The planning forms labeled F are designed to help you pass on information to common carriers and modem suppliers.

- Contacting a common carrier.

  A common carrier (usually a telephone company) will have a telephone line installed in your place of business to support your communications needs.

- Contacting a modem supplier.

  IBM and other vendors supply modems to support your communications needs. Remember, you need a modem for each end of the communications line.

The G Planning Forms

The planning forms labeled G are designed to help you gather configuration information before your system arrives. You gather this configuration information from two places:

- Remote site.

  By remote site we mean the other end of your communications line.

- A network provider.

  By network provider we mean a company that provides a communications network that you can link your computer to.

The configuration prompts that are included in this manual require that you contact the network provider and in some cases the remote site.

There are certain pieces of information that you will need from the remote site and/or the network provider to configure your communications lines, controllers, and devices on your system.

Where the Communications Planning Forms Are Located

Blank F and G planning forms are provided in Appendix A of this manual. Because there is only one set of forms, you need to copy the master provided and use the copy for your actual planning work. By copying the master, you will always have new forms to use.

Each communications line that you plan for requires that you fill out at least two forms: one from the F and at least one from the G forms.

Note: An X.25 network does not require an F planning form.

Working with the F Planning Forms

The F planning forms are designed to provide you with information that you pass to the common carrier (usually a telephone company) and a modem supplier (IBM or a non-IBM modem supplier). The F planning forms have the following distinct areas:

- Communications type (SDLC, Asynchronous, BSC, token-ring)

- Communications line type (switched, nonswitched point-to-point, nonswitched multipoint)

- Information to give your modem supplier

- Information to give your common carrier (usually a phone company)

- Non-IBM modem supplier (if you choose to use a non-IBM modem)

Notes:

1. There is no F planning form for the X.25 communications type.

2. The F planning form for a token-ring network is unique and is explained in Task 5, "Planning for a Token-Ring Line" on page 87.

How to Use the F Planning Forms

The following list explains the numbered areas on the example planning form and what you do with the information from the F planning forms.

1   This area on the planning form represents the communications line type you are planning for. If you are not sure, check the System Information Form from your planning guide.

2   This area on the planning form indicates whether the line is switched, nonswitched point-to-point, or nonswitched multipoint.

This is information that the common carrier needs to know.

3   This area (To Modem Supplier) indicates which modem you have ordered or will order for this communications line. To determine whether you have ordered a modem, check the System Information Form from your planning guide. If you have, locate the modem type on the F planning form, and circle the entire line. If you have not ordered a modem, study the form, choose the modem that fulfills your needs, circle the entire line, and call IBM (or a non-IBM modem supplier) to order the modem(s).

You will pass the information on the circled line to IBM or a non-IBM modem supplier.

4   This area (To Common Carrier) on the planning form indicates information that needs to be passed to the common carrier.

5   Use this area of the planning form only if you ordered a non-IBM modem or an IBM modem which isn't listed.

This area on the planning form is provided as a place to record information about modems *if* you choose to order non-IBM modems.

You will pass the information about the non-IBM modem to the common carrier.

The diagram below shows an example of an F planning form.

■1 ■2 ■3 ■4

F1 SDLC Switched Communications Line Planning Form

	To Modem Supplier						To Common Carrier				
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) 2	Type of Service	Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	Yes Via V.25 bis		0.9B	RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
■5 Non-IBM Modem											

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

2 Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC011-4

To Summarize: The F planning forms section identifies important areas on the F planning form and indicates who you need to pass the information to. You will need an F planning form for every communications line on your system with the exception of X.25, which does not require one.

Working with the G Planning Forms

The G planning forms are designed to help you gather specific configuration information at planning time (before your system arrives).

All of the G forms have these specific information areas:

- Line information
- Controller information
- Device information

Each area has several columns. The first column contains the prompt that you use if you perform configuration using system-provided menus. The columns to the right of the prompt column provide space to record which of the possible line, controller, and device choices you want. The prompts are explained in a numbered list on the G planning forms in Part 2.

How to Use the G Planning Forms

The list below explains the numbered areas on the example planning form located on the following page, and what you do with the information from that area.

1 The line information area of the planning form is divided into two other areas; prompt and response. The prompt area presents the actual line configuration prompts that are displayed at configuration time. The response area is a place for you to record your response. Possible responses to the prompts are explained to you in Part 2 of this manual.

2 The controller information area of the planning form is divided into a prompt area and as many areas as there are controllers for that particular line type. The prompt area presents the actual controller configuration prompts that are displayed at configuration time. In this example, we have the prompt area, which presents the controller configuration prompts, and the only possible controller types that you can have with this particular line type: APPC, Finance Host, and Remote Work Stations (RWS). The response area is a place for you to record your response. Possible responses to the prompts are explained in Part 2 of this manual.

3 The device information area of the planning form is divided into a prompt area and as many areas as there are devices for that particular line type. The prompt area presents the actual device configuration prompts that are displayed at configuration time. In this example, we have the prompt area, which presents the device configuration prompts, and the only possible device types that you can have with this particular line type: APPC, Finance, SNUF, Host, Display, and Printer. The response area is a place for you to record your response. Possible responses to the prompts are explained to you in Part 2 of this manual.

The diagram below shows an example of a G planning form.

G1 SDLC Configuration Information (Part 1)

Line ID———————————— **1**

Line Information

	Prompt	Response
1	Data link role	
2	Physical interface	
3	Connection type	
4	Switched network backup	
5	Exchange identifier	
6	NRZI data encoding	
7	Line speed	
8	Switched connection type	
9	Station address	
10	Maximum frame size	
11	Duplex	

Example

2

Controller Information

	Prompt	APPC	Finance	Host	RWS
12	Controller type	N/A		N/A	
13	Controller model	N/A	N/A	N/A	
14	Switched line				
15	Switched network backup				
16	Character code				
17	Maximum frame size				N/A
18	Remote network identifier		N/A		N/A
19	Remote control point name		N/A		N/A
20	Exchange identifier			N/A	
21	SSCP identifier	N/A			
22	Initial connection				
23	Connection number				
24	Data link role		N/A	N/A	N/A
25	Station address				

3

Device Information

	Prompt	APPC	Finance	SNUF	Host	Display	Printer
26	Device type	N/A		N/A	N/A		
27	Device model	N/A	N/A	N/A	N/A		
28	Keyboard language type	N/A	N/A	N/A	N/A		N/A
29	Local location address						
30	Remote location name		N/A			N/A	N/A
31	Remote network identifier		N/A	N/A		N/A	N/A
32	Local location name		N/A	N/A		N/A	N/A
33	Application type	N/A	N/A	N/A		N/A	N/A
34	Maximum length request unit	N/A	N/A	N/A		N/A	N/A
35	Emulated device	N/A	N/A	N/A		N/A	N/A

RSLC010-7

To Summarize: The G planning forms section identifies the important areas on the planning form and tells you what those areas will be used for and when they will be used.

When You Are Finished with Part 1

When you finish this task, continue with Part 2, Working with Communications Planning Forms.

Part 2. Working with Communications Planning Forms

Part 2 of this manual shows you how to work with the different types of communications planning forms.

Part 2 is divided into five tasks:

* Task 1, Planning for an SDLC Line
* Task 2, Planning for a BSC Line
* Task 3, Planning for an Asynchronous Line
* Task 4, Planning for an X.25 Line
* Task 5, Planning for a Token-Ring Line

Completing Your Communications Planning Forms

Each communications type has two planning forms that need to be filled out. The forms will have labels starting with an F and a G. For example:

> Form F1, SDLC Switched Line Communications Type Planning Form
> Form G1, SDLC Configuration Information Planning Form

After you have filled out these two planning forms for each communications line or network you ordered, you are directed where to continue. That is, you will be filling out additional planning forms for other communications lines or networks or directed to Part 3, "What to Do with Your Completed Communications Planning Forms" on page 101.

Communications types (SDLC, Asynchronous, BSC, X.25, and TRLAN) are used to organize the planning work for communications lines and networks for the AS/400 system. The list below identifies which page you need to go to complete the communications planning forms for each communications line or network you will have on your system.

Once again, each communications type you want to have on your system requires that you complete a set of communications planning forms.

Where to Start

If you do not remember which communications types you ordered, check the System Information Form.

Task 1. Planning for an SDLC Line

SDLC Communications Line Planning Forms

Determining which SDLC planning form to use is your first step in the planning process.

Step 1 — Choosing the Correct SDLC Planning Form

There are three planning forms that you could possibly use for a communications line using the SDLC protocol.

Locate the System Information Form (which you completed in Chapter 1 of the *Planning Guide — 9406* or *Planning Guide — 9404*) and find the communications area of that form.

A System Information Form (Part 4)

Other Data Communications

Line Type	Connection Type	Controller Type	Device Type or Quantity	Modem	Physical Interface	Line Speed
SDLC	Switched	APPC	APPC	5841	EIA 232/V.24	2400

Example

RSLC015-3

The first two columns should tell you which line type (for example SDLC) and connection type (switched, nonswitched) this communications line uses. With this in mind, select the correct SDLC planning form from the list below. They are:

F1   SDLC Switched Line Communications Planning form

F2   SDLC Nonswitched Point-to-Point Line Communications Planning form

F3   SDLC Nonswitched Multipoint Line Communications Planning form

Go to Appendix A of this manual and make a copy of the master of the planning form you chose to use for this communications line. Use the copy to do your actual planning work.

Step 2 — Identifying the Modem

The SDLC planning form lists all the IBM modems that you can use with this line.

F 1   **SDLC Switched Communications Line Planning Form**

		To Modem Supplier					To Common Carrier				
Modem	Line Speed	Interface [1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	Yes Via V.25 bis		0.9B	RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem											

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC012-4

Look on the System Information Form, communications area, to determine which modem you ordered for this communications line.

A   **System Information Form (Part 4)**

Other Data Communications

Line Type	Connection Type	Controller Type	Device Type or Quantity	Modem	Physical Interface	Line Speed
SDLC	Switched	APPC	APPC	5841	EIA 232/V.24	2400

Example

RSLC015-3

Does the System Information Form have a modem listed for this line?

Yes   Continue with this step.

No   Go to "Step 3 — Ordering a Modem" on page 14.

On the SDLC planning form, find the modem that matches the one listed on the System Information Form. On the SDLC planning form, circle the entire line as shown in the example below.

F1 SDLC Switched Communications Line Planning Form

	To Modem Supplier						To Common Carrier				
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	Yes Via V.25 bis		0.9B	RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem											

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC016-3

Step 3 — Ordering a Modem

Are you going to order your modem from IBM or from a non-IBM modem supplier?

IBM Modem   Continue with this step.

Non-IBM Modem   Go to "Step 4 — Ordering a Non-IBM Modem" on page 15.

The System Information Form did not list a modem; you need to order one. Look at the SDLC planning form and locate the area labeled *To Modem Supplier*.

F1 SDLC Switched Communications Line Planning Form

| | | To Modem Supplier | | | | | | To Common Carrier | | | | |
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack)[2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	Yes Via V.25 bis		0.9B	RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem											

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC022-3

This section of the SDLC planning form lists the IBM modems you can use with this line. Make a choice of which modem suits your needs and circle the entire line that the modem type is recorded on.

Contact your IBM marketing representative and order the modem type that you have circled on the planning form.

Go to "Step 5 — Ordering a Communications Line from a Common Carrier" on page 16.

Step 4 — Ordering a Non-IBM Modem

The System Information Form did not list a modem; you need to order one. The SDLC planning form provides space for you to record the modem type and model number and characteristics of a non-IBM modem. Contact the vendor of your non-IBM modem and record its type and characteristics on the planning form.

F1 SDLC Switched Communications Line Planning Form

	To Modem Supplier						To Common Carrier				
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	Yes Via V.25 bis		0.9B	RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem											

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC023-3

Step 5 — Ordering a Communications Line from a Common Carrier

Look at the SDLC planning form and locate the area labeled *To Common Carrier*.

F1		SDLC Switched Communications Line Planning Form									
To Modem Supplier							**To Common Carrier**				
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	Yes Via V.25 bis		0.9B	RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem											

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC024-3

This area has several pieces of information that the common carrier needs to know. They should be included in the circle that you drew around the modem type you selected earlier.

Note: The common carrier will also want to know if you are switched, nonswitched point-to-point, or nonswitched multipoint. You can readily answer this by looking at the name of the form.

If you need more information, refer to the following for a complete description of communications line requirements and other planning information for the modem you selected:

* *IBM 3863, 3864, and 3865 Introduction and Site Preparation Guide*, GA27-3200

* *5811-20, -28, 5812-10, -18, 5810 Modems Descriptions and Planning Guide*, GA33-0081

* *IBM 5841 Guide to Operations*, GA27-3649

* *IBM 5865 and 5866 Modems, Planning, and Site Preparation Guide*, GA33-0037

* *IBM 5865, 5866, and 5868 Modem and Planning Guide*, GA33-0057

* Documentation provided with your non-IBM modem

SDLC Configuration Information

By gathering configuration information before your system arrives, the actual process of configuring your communications lines or networks will be easier and less time-consuming.

What Type of Configuration Information Is Needed?

The configuration planning process looks at these types of information:

- Line information
- Controller information
- Device information

This information is detailed in three distinct areas of the configuration planning form. In addition to the planning form is a numbered list (located a few pages ahead) that describes the entries on the planning form and discusses the possible choices available to the person completing the planning forms.

Note: The controller and device areas of the planning form contain several choices for you to choose from. If you cannot recall which controller and which device type you want to configure for this line, see the System Information Form.

Where Do You Get Configuration Information?

You will have to exchange or get configuration information with the remote site (other end of the communications line) or a network provider. Only information that you can:

get

give

or coordinate

with the remote site or network provider is presented on the planning form.

The configuration process requires specific information about the communications line, controller, and device. The configuration planning form is a place you can record that information. In most cases, you will need to contact someone at the remote site or the network provider to have that exchange of information take place.

Note: The configuration prompts on the G planning form are not a complete list of all of the configuration prompts that will be needed when the actual configuration is performed. A complete list of all the configuration prompts and their descriptions will be presented in the manual *Communications User's Guide*.

Who Will Use the Completed Configuration Planning Forms?

The person who performs the configuration is referred to these planning forms. Therefore, keep these completed configuration planning forms in a place where they will be accessible to the person performing the configuration tasks.

Getting Started on Form G1

Locate Form G1 in Appendix A. You will need this form to complete the configuration planning information for this SDLC communications line.

Working with the planning form is a numbered list (located on the following pages) that describes the entries on the planning form and discusses the possible choices available to the person completing the planning forms.

Below is an example of an SDLC Configuration Information planning form. Notice that the first column on the planning form contains numbers starting with 1 and proceeding in ascending order. This column of numbers corresponds to the list on the following page. Start with number 1 from the list and record your responses in the space provided on the form.

You almost always have to contact someone at the remote site to get, give, or coordinate the information that the form asks for. Before calling the remote site you will probably want to have all your questions identified. This will result in less calls to the remote site.

Note: When you see *N/A* in a column on the planning form, it means that it is not applicable for a particular configuration and you do not need to record anything on the planning form.

G1 SDLC Configuration Information (Part 2)

Line ID _____

Device Information

	Prompt	APPC	Finance	SNUF	Host	Display	Printer
26	Device type						
27	Device m						
28	Keyboard						
29	Local loca						
30	Remote lo						
31	Remote n						
32	Local loca						
33	Applicatio						
34	Maximum						
35	Emulated						
36	Emulated						
37	Emulated						
38	Emulation						
39	Program s						
40	Applicatio						
41	Host type						
42	Record le						
43	Block leng						
44	Default pr						

G1 SDLC Configuration Information (Part 1)

Line ID _____

Line Information

	Prompt	Response
1	Data link role	
2	Physical interface	
3	Connection type	
4	Switched network backup	
5	Exchange identifier	
6	NRZI data encoding	
7	Line speed	
8	Switched connection type	
9	Station address	
10	Maximum frame size	
11	Duplex	

Example

Controller Information

	Prompt	APPC	Finance	Host	RWS
12	Controller type	N/A		N/A	
13	Controller model	N/A	N/A	N/A	
14	Switched line				
15	Switched network backup				
16	Character code				
17	Maximum frame size				N/A
18	Remote network identifier		N/A		N/A
19	Remote control point name		N/A		N/A
20	Exchange identifier			N/A	
21	SSCP identifier	N/A			
22	Initial connection				
23	Connection number				
24	Data link role		N/A	N/A	N/A
25	Station address				

RSLC006-6

RSLC006-6

Task 1. Planning for an SDLC Line **19**

Note: In the descriptions that follow, the response in boldface type is the default for that prompt.

Line Information

1. Data link role

   Specifies whether the system is to be the primary (controlling) station, or the secondary (responding) station, or whether the systems will dynamically negotiate the primary and secondary roles.

   Coordinate this with the remote site.

   The possible responses are:

   NEG   The AS/400 system and the remote system will negotiate which system is primary.

   PRI   The AS/400 system is the primary station, controlling the link by sending commands to the secondary station.

   SEC   The AS/400 system is a secondary station, responding to the commands.

2. Physical interface

   Specifies the type of physical interface on the input/output adapter (IOA) communications port.

   The possible responses are:

   RS232V24   RS-232/V.24 physical interface. This physical interface uses the EIA 232/V.24 communications cable.

   V35   V.35 physical interface. This physical interface uses the V.35 communications cable.

   X21   X.21 physical interface. This physical interface uses the X.21 communications cable.

   X21BISV24   X.21 bis/V.24 physical interface. This physical interface uses the EIA 232/V.24 communications cable. For X.21 networks only.

   X21BISV35   X.21 bis/V.35 physical interface. This physical interface uses the V.35 communications cable. For X.21 networks only.

3. Connection type

   Specifies the type of line connection.

   Check the F planning form to determine the connection or line type to choose.

   The possible responses are:

   NONSWTPP   Line is nonswitched point-to-point.

   SWTPP   Line is switched point-to-point.

   MP   Line is nonswitched multipoint.

4. Switched network backup

   This is an optional feature of nonswitched modems and specifies whether the modem has the switched network backup feature (SNBU). The backup feature is used to bypass a broken nonswitched (leased line) connection by dialing a telephone number to establish a switched connection.

   The possible responses are:

| NO | Your modem does not have the SNBU feature. |
| YES | Your modem does have the SNBU feature. |

Note: SNBU must be supported by the remote site if you select yes.

5. Exchange identifier

   Specifies, in hexadecimal characters, the exchange identifier that is used to identify the local system to the remote system.

   Give this identifier to the remote site.

   The possible responses are:

   | **SYSGEN** | The AS/400 system will create the exchange identifier. |
   | exchange-ID | Enter an exchange identifier of 8 hexadecimal digits starting with 056. For example: 05600000. |

6. NRZI data encoding

   Check the F planning form and coordinate with the remote site.

   The possible responses are:

   | **YES** | NRZI data encoding will be used. |
   | NO | NRZI data encoding will not be used. |

   Note: Regardless of whether you select yes or no, the AS/400 system and the remote system must be configured the same.

7. Line speed

   Line speed is the rate in bits per second (bps) that the data travels over a data communications line.

   Coordinate this with the remote site.

   The possible responses are:

   | **9600** | This is the default. |
   | line-speed | Valid line speeds are: 600, 1200, 2400, 4800, 7200, 9600, 14,400, 19,200, 48,000, 56,000, 57,600, and 64,000 bps. |

8. Switched connection type

   Specifies whether the switched line is to be used for incoming calls, outgoing calls, or both.

   This prompt is valid only if the Connection type prompt is switched point-to-point (SWTPP).

   Coordinate with the remote site.

   The possible responses are:

BOTH	Used for both incoming and outgoing calls.
ANS	Only answer incoming calls.
DIAL	Only dial out.

9. Station address

   This prompt is required only if the Data link role prompt of the AS/400 system is secondary (SEC) or negotiated (NEG) and the line is switched.

Specifies the hexadecimal address by which the local system is known to the remote system. The address must be between hexadecimal 01 and FE.

Give the address to the remote site.

10. Maximum frame size

Specifies the maximum frame size, in bytes, that can be transmitted and received on the line.

Coordinate with the remote site.

The possible responses are:

   521
   265
   1033
   2057

11. Duplex

Specifies whether request-to-send (RTS) should be permanently turned on (for full-duplex modems) or only when transmission is required (for half-duplex modems).

Coordinate with the remote site.

The possible responses are:

HALF   RTS is turned on when transmission is required (for half-duplex modems).

        Note: Half-duplex can be specified if the modem you are using is full-duplex.

FULL   RTS is permanently turned on (for full-duplex modems).

Controller Information

If you are planning to use this communications line to communicate with more than one location, you will need to fill out the Controller Information section for each location.

12. Controller type

    Specifies the type of controller on this line.

    Contact the remote site to determine which controller is being used.

    If it is a Finance controller, the possible responses are:

    3694
    4701

    If it is a Remote Work Station (RWS) controller, the possible responses are:

    3174
    3274

13. Controller model

    For Remote Work Station controllers (RWS on the G planning form) only, specifies the model number of the controller attached to this line.

    The model number is always 0.

14. Switched line

    Specifies whether the remote controller has a switched line connection.

    This prompt is valid only if the Connection type prompt is switched point-to-point (SWTPP).

    Get this information from the F planning form.

    The possible responses are:

    NO   The controller is attached to a nonswitched line.

    YES   The controller is attached to a switched line.

15. Switched network backup

    This is an optional feature of nonswitched modems and specifies whether the modem has the switched network backup feature (SNBU). The backup feature is used to bypass a broken nonswitched (leased line) connection by dialing a telephone number to establish a switched connection.

    Contact the remote site to determine whether their modem has SNBU.

    The possible responses are:

    NO   The remote system modem does not have the SNBU feature.

    YES   The remote system modem does have the SNBU feature.

16. Character code

    Character code this controller will be using.

    Coordinate this with the remote site.

    The possible responses are:

    EBCDIC
    ASCII

17. Maximum frame size

Specifies the maximum frame size that the controller will accept.

Coordinate with the remote site.

The possible responses are:

LINKTYPE   A maximum frame size of 521 will be used.

265

521

1033

2057

Note: The maximum frame size should be less than or equal to the maximum frame size specified on the line.

18. Remote network identifier

    Specifies the name of the remote network.

    Get the name of the remote network from the remote site.

    The possible responses are:

NETATR	Remote network identifier is taken from the local network identifier value configured in the AS/400 system network attributes.
NONE	No remote network identifier. This is valid only if the APPN-capable response is no.
Remote network identifier	Obtain the remote system's network identifier.

19. Remote control point name

    The control point name of the remote system that you will communicate with.

    Contact the remote site for the control point name.

20. Exchange identifier

    Specifies the 8-character hexadecimal exchange identifier that is used by the local system to identify the remote system.

    Contact the remote system to learn what their exchange identifier is.

21. SSCP identifier

    If this AS/400 system is going to communicate with a host system, you need to contact that system and obtain its System Service Control Point (SSCP) identifier.

    Coordinate this with the remote site.

The possible responses are:

050000000000 This value will be assigned as the host systems SSCP identifier if you take the default.

>   **Notes:**
>
>   a. This default is for finance controllers.
>   b. Host controllers have no default.

SSCP identifier Enter the remote systems SSCP identifier.

22. Initial connection

    Specifies the expected call direction.

    Coordinate this with the remote system.

    The possible responses are:

    ANS   The AS/400 system only answers incoming calls.

    DIAL   The AS/400 system only dials outgoing calls.

23. Connection number

    Specifies the number used to dial the remote system. This can be a telephone number, or an X.21 connection number depending on the type of line.

    Get this information from the remote site.

    The possible responses are:

    DC   Direct connection. The connection number has already been established in the network.

    Connection number   Specify the telephone number or the X.21 connection number.

24. Data link role

    Specifies whether the remote system is to be the primary (controlling) station, the secondary (responding) station, or whether the systems will dynamically negotiate the primary and secondary roles.

    The primary station controls the communications link by sending commands to the secondary station, and the secondary station responds to the commands.

    Coordinate this with the remote site.

    The possible responses are:

    NEG   The AS/400 system and the remote system negotiate which system is primary.

    PRI   The remote system is the primary station.

    SEC   The remote system is a secondary station.

25. Station address

    If the data link role of the controller is primary or negotiated, specify the hexadecimal station address (01 through FE) of the AS/400 system.

    If the data link role of the controller is secondary, specify the hexadecimal station address (01 through FE) of the remote system.

    Coordinate this with the remote site.

Note: Host controllers are always primary and finance controllers are always secondary.

Device Information

You will need to complete the Device Information section of the G planning form for each device you intend to attach to the controller.

Note: If all the devices are the same, complete one G form and then copy it for each like device.

26. Device type

    Specifies the type of device.

    If you are configuring Finance devices, the possible responses are:

    > 3624
    > 3694
    > 4704

    If you are configuring display devices, the possible responses are:

    > 3277
    > 3278
    > 3279

    If you are configuring printer devices, you must specify:

    > 3287

    Note: There are no defaults.

27. Device model

    Specifies the model number of the device.

    For Finance devices, the model number is always 0.

    For display devices, the possible responses are:

    > If the display is a 3277, the model can be NONE or DHCF.
    > If the display is a 3278 or 3279, the model must be NONE.
    > For printer devices, the model number is always 0.

28. Keyboard language type

    Possible choices are:

AGI	Austria/Germany Multinational
BLI	Belgium Multinational
CAI	Canada Multinational
DMI	Denmark Multinational
NWI	Norway Multinational
FNI	Finland Multinational
SWI	Sweden Multinational
FAI	France (AZERTY) Multinational
ITI	Italy Multinational
PRI	Portugal Multinational
SPI	Spain Multinational
SSI	Latin America Spanish-Speaking Multinational

29. Local location address

    Specifies the local location address for this device. This value is a hexadecimal field of 00 through FF.

    If the devices (displays or printers) are attaching to a 3174 or a 3274 remote work station controller, the valid values are hexadecimal 02 through 41.

Note: For a 3277 DHCF display, values are hexadecimal 00 through FF.

Coordinate this with the remote site.

30. Remote location name

    The name of the remote location associated with the remote system. For APPC, contact the remote location and obtain the remote location name (LU name). For other controllers, select an 8-character location name.

    Coordinate this with the remote site.

    Note: This prompt is not valid for Finance devices.

31. Remote network identifier

    Specifies the remote network identifier.

    Note: This prompt is valid only for APPC.

    Coordinate this with the remote site.

    The possible responses are:

NETATR	The remote network identifier will be taken from the network attribute.
BLANK	The remote network identifier will be hexadecimal 40.
remote-network-ID	Choose an 8-character remote network identifier.

32. Local location name

    Specifies the unique logical unit name that identifies the local system to remote devices. The name cannot be the same as that specified for the remote location name prompt. The combination of the local location name prompt and remote location name prompt must be unique.

    Possible responses are:

NETATR	The local location name from the network attributes will be used as the local location name.
local location name	Enter the name by which the local system is to be known to the remote system.

    Note: This prompt is valid only for APPC.

33. Application type

    Specifies the type of application this device will be used for.

    Coordinate this with the remote site.

    The possible responses are:

RJE	Remote Job Entry Facility
EML	3270 device emulation
PGM	A user-written program

    Note: This prompt is valid only for host-type devices.

34. Maximum length request unit

    Specifies, in bytes, the maximum request unit (RU) length allowed.

    Coordinate this with the remote site.

The possible responses are:

256	This is the default.
CALC	The AS/400 system determines the best value to use.
maximum-length-RU	Enter a value, 256 through 4096, in increments of 256, to be used as the maximum length for incoming request units.

35. Emulated device

This determines what type of device is being emulated by the real device.

Coordinate this with the remote site.

The possible responses are:

3278	Emulates a 3278 display device.
3284	Emulates a 3284 printer device.
3286	Emulates a 3286 printer device.
3287	Emulates a 3287 printer device.
3288	Emulates a 3288 printer device.
3289	Emulates a 3289 printer device.

36. Emulated keyboard

Specifies the type of 3278 display keyboard to be emulated.

Note: This prompt is valid only if the application type is EML.

Coordinate this with the remote site.

The possible responses are:

UPPER Emulated with uppercase characters only.

LOWER Emulated with uppercase and lowercase characters.

37. Emulated numeric lock

Specifies whether the numeric shift lock is to be set automatically for numeric input fields received from the host system. This prompt is for data entry keyboards only.

Note: This prompt is valid only if the application type is EML.

Coordinate this with the remote site.

The possible responses are:

NO Numeric shift lock is not set automatically.

YES Numeric shift lock is set automatically.

38. Emulation work station

The emulation work station prompt associates an emulation device with a real display or printer device. The emulated device is reserved for use exclusively by that work station. If no device is specified, any work station can use the emulation device.

This is a local option. Coordinate this with the remote site.

Note: This prompt is valid only if the application type is EML.

39. Program start request capable

If yes, this device is reserved for host call via a program start request. It cannot be acquired by a program on the local system.

The possible responses are:

NO   No program start request allowed.

YES   Program start request allowed.

40. Application identifier

Specifies the VTAM identifier of the CICS/VS or the IMS/VS host subsystem to be sent with the log-on message.

41. Host type

Specifies the type of host subsystem with which this session is to communicate.

The possible responses are:

IMS   The session is to communicate with IMS/VS.

CICS   The session is to communicate with CICS/VS.

IMSRTR   The session is to communicate with IMS/VS using the ready-to-receive option.

42. Record length

Specifies the maximum record length allowed when communicating with this device. The maximum value for this prompt is 32,767. The value must not exceed the block length value for this device and must not exceed the buffer size specified on the line that this device is attached to.

Coordinate this with the remote site.

The possible responses are:

512   This is the default.

record length   The maximum length of records to be sent when using this device. The value must be at least the size of the largest record to be sent. Valid values are 1 through 32,767.

43. Block length

Specifies the maximum block length allowed when communicating with this device. The maximum value for this prompt is 32,767. The value must not exceed the buffer size specified on the line that this device is attached to.

Coordinate this with the remote site.

The possible responses are:

512   This is the default.

block length   This value specifies the maximum block length of records to be sent when using this device. The value must be at least the size of the largest record to be sent. Valid values are 1 through 32,767.

44. Default program

The name of the program, and the library that the program is in, to be started if a program start request is received from the host without specifying a program name.

Coordinate this with the remote site.

What to Do When Forms F and G Are Complete

If you have additional SDLC communications lines to plan for, return to page 11 and complete another set of SDLC communications planning forms.

Or

If you have no other forms to fill out, go to Part 3, What to Do with Your Completed Communications Planning Forms.

Task 2. Planning for a BSC Line

BSC Communications Line Planning Forms

Determining which BSC planning form to use is your first step in the planning process.

Step 1 — Choosing the Correct BSC Planning Form

There are three planning forms that you could possibly use for a communications line using the BSC protocol.

Locate the System Information Form (which you completed in Chapter 1 of the *Planning Guide — 9406* or the *Planning Guide — 9404*) and find the communications area of that form.

A System Information Form (Part 4)

Other Data Communications

Line Type	Connection Type	Controller Type	Device Type or Quantity	Modem	Physical Interface	Line Speed
BSC	Switched	BSC	BSC	5842	EIA 232/V.24	2400

Example

RSLC025-2

The first two columns should tell you which line type (for example, BSC) and connection type (switched, nonswitched) this communications line uses. With this in mind, select the correct BSC planning form from the list below. They are:

F4   BSC Switched Line Communications Planning form

F5   BSC Nonswitched Point-to-Point Line Communications Planning form

F6   BSC Nonswitched Multipoint Line Communications Planning form

Go to Appendix A of this manual and make a copy of the master of the form you chose to use for this communications line. Use the copy to do your actual planning work.

Step 2 — Identifying the Modem

The BSC planning form lists all the IBM modems that you can use with this line.

F4   BSC Switched Communications Line Planning Form

		To Modem Supplier						To Common Carrier			
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	N/A		0.9B	RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem										

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC013-4

Look on the System Information Form, communications area, to determine which modem you ordered for this communications line.

A   System Information Form (Part 4)

Other Data Communications

Line Type	Connection Type	Controller Type	Device Type or Quantity	Modem	Physical Interface	Line Speed
BSC	Switched	BSC	BSC	5842	EIA 232/V.24	2400

Example

RSLC025-2

Does the System Information Form have a modem listed for this line?

Yes   Continue with this step.

No   Go to "Step 3 — Ordering a Modem" on page 36.

On the BSC planning form, find the modem that matches the one listed on the System Information Form. On the BSC planning form, circle the entire line as shown in the example below.

F4   BSC Switched Communications Line Planning Form

To Modem Supplier						To Common Carrier				
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	N/A	EQW5YF–15245–DM–E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	N/A	EQW5YF–15245–DM–E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	N/A		0.9B	RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA–1, Local and Remote Loopback	N/A	ANO9SA–67992–DP–N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA–1, Local and Remote Loopback	N/A	ANO9SA–67992–DP–N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non–IBM Modem										

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC026-3

Step 3 — Ordering a Modem

Are you going to order your modem from IBM or from a non-IBM modem supplier?

IBM Modem   Continue with this step.

Non-IBM Modem

The System Information Form did not list a modem; you need to order one. Look at the BSC planning form and locate the area labeled *To Modem Supplier*.

F4 BSC Switched Communications Line Planning Form

		To Modem Supplier				To Common Carrier				
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	N/A		0.9B	RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem										

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC027-3

This area of the BSC planning form lists all the IBM modems you can use with this line. Make a choice of which modem suits your needs and circle the entire line that the modem type is recorded on.

Contact your IBM marketing representative and order the modem type that you have circled on the planning form.

Step 4 — Ordering a Non-IBM Modem

The System Information Form did not list a modem; you need to order one. The BSC planning form provides space for you to record the modem type and model number and characteristics of a non-IBM modem. Contact the vendor of your non-IBM modem and record its type and characteristics on the planning form.

F4 BSC Switched Communications Line Planning Form

	To Modem Supplier					To Common Carrier				
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	N/A		0.9B	RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem										

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC028-3

Task 2. Planning for a BSC Line **37**

Step 5 — Ordering a Communications Line from a Common Carrier

Look at the BSC planning form and locate the area labeled *To Common Carrier.*

F4 **BSC Switched Communications Line Planning Form**

	To Modem Supplier					To Common Carrier				
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	N/A		0.9B	RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem										

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC029-3

This area has several pieces of information that the common carrier needs to know. They should be included in the circle that you drew around the modem type you selected earlier.

Note: The common carrier will also want to know if you are switched, nonswitched point-to-point, or nonswitched multipoint. You can readily answer this by looking at the name of the form.

If you need more information, refer to the following for a complete description of communications line requirements and other planning information for the modem you selected:

- *IBM 3863, 3864, and 3865 Introduction and Site Preparation Guide,* GA27-3200

- *5811-20, -28, 5812-10, -18, 5810 Modems Descriptions and Planning Guide,* GA33-0081

- *IBM 5841 Guide to Operations,* GA27-3649

- *IBM 5810 Enclosure, 5811-10 and 5811-18 Modems, Planning, and Site Preparation Guide,* GA33-0033

- *IBM 5865 and 5866 Modems, Planning, and Site Preparation Guide,* GA33-0037

- *IBM 5865, 5866, and 5868 Modem and Planning Guide,* GA33-0057

- Documentation provided with your non-IBM modem

Binary Synchronous Communications (BSC) Configuration Information

By gathering configuration information before your system arrives, the actual process of configuring your communications lines or networks will be easier and less time consuming.

What Type of Configuration Information Is Needed?

The configuration planning process looks at these types of information:

- Line information
- Controller information
- Device information

This information is detailed in three distinct areas of the configuration planning form.

Where Do You Get Configuration Information?

You will have to exchange with or get configuration information from the remote site (other end of the communications line) or a network provider. Only information that you can:

get

give

or coordinate

with the remote site or network provider is presented on the planning form.

The configuration process requires specific information about the communications line, controller, and device. The configuration planning form is a place you can record that information. In most cases, you will need to contact someone at the remote site or the network provider to have that exchange of information take place.

Note: The configuration prompts on the G planning form are not a complete list of all of the configuration prompts that will be needed when the actual configuration is performed. A complete list of all the configuration prompts and their descriptions will be presented in the manual *Communications User's Guide*.

Who Will Use the Completed Configuration Planning Forms?

The person who performs the configuration is referred to these planning forms. Therefore, keep these completed configuration planning forms in a place where they will be accessible to the person doing the configuration tasks.

Getting Started on Form G2

Locate Form G2 in Appendix A. You need this form to complete the configuration planning information for this BSC communications line.

In addition to the planning form, is a numbered list (located on the following pages) that describes the entries on the planning form and discusses the possible choices available to the person completing the planning forms.

Below is an example of a Binary Synchronous Communications Configuration Information Form. Notice that the first column on the planning form contains numbers starting with number 1 and proceeding in ascending order. This column of numbers corresponds to the list on the following page. Start with number 1 from the list and record your responses in the space provided on the form.

You almost always have to contact someone at the remote site to get, give, or coordinate the information that the form asks for. Before calling the remote site you will probably want to have all your questions identified. This will result in less calls to the remote site.

Note: When you see *N/A* in a column on the planning form, it means that it is not applicable for a particular configuration and you do not need to record anything on the planning form.

G2 Binary Synchronous Communications Configuration Information (Part 2)

Line ID _____

	Prompt
21	Local locatio
22	Connection ty
23	Application t
24	Contention re
25	Blocking type
26	Separator cha
27	Remote BSCEL
28	Record length
29	Block length
30	Transmit in t
31	Compress and
32	Truncate trai
33	Group separat
34	Emulated devi
35	Emulated keyb
36	Emulated nume
37	Emulation wor

G2 Binary Synchronous Communications Configuration Information (Part 1)

Line ID _____

Line Information

	Prompt	Response
1	Application type	
2	Physical interface	
3	Connection type	
4	Switched network backup	
5	Station address	
6	Line speed	
7	Switched connection type	
8	Maximum buffer size	
9	Character code	
10	Number of SYN characters	
11	Include STX character in LRC	

Example

Controller Information

	Prompt	Response
12	Connection type	
13	Switched network backup	
14	Application type	
15	Initial connection	
16	Switched connection number	
17	Local identifier	
18	Remote identifiers	
19	RJE host type	
20	RJE host signon/logon	

RSLC007-3

Note: In the descriptions that follow, the response in boldface type is the default for that prompt.

Line Information

1. Application type

   Specifies the type of application this BSC line will be used for.

   Coordinate this with the remote site.

   The possible responses are:

   PGM   A user-written program

   RJE   Remote Job Entry Facility

   EML   3270 device emulation

2. Physical interface

   Specifies the type of physical interface on the input/output adapter (IOA) communications port.

   The possible responses are:

   RS232V24   RS-232/V.24 physical interface. This physical interface uses the EIA 232/V.24 communications cable.

   V35   V.35 physical interface. This physical interface uses the V.35 communications cable.

   X21BISV24   X.21 bis/V.24 physical interface. This physical interface uses the EIA 232/V.24 communications cable.

   X21BISV35   X.21 bis/V.35 physical interface. This physical interface uses the V.35 communications cable.

3. Connection type

   Specifies the type of line connection.

   Coordinate this with the remote site.

   The possible responses are:

   NONSWTPP   Line is nonswitched point-to-point.

             Note: This value cannot be selected if you are using 3270 device emulation.

   SWTPP   Line is switched point-to-point.

             Note: This value cannot be selected if you are using 3270 device emulation.

   MPTRIB   Line is multipoint tributary.

             Notes:

             a. This value cannot be selected if you are using RJE.
             b. This value must be selected if you are using 3270 device emulation.

4. Switched network backup

   This is an optional feature of nonswitched modems and specifies whether the modem has the switched network backup feature (SNBU). The backup feature is used to bypass a broken nonswitched (leased line) connection by dialing a telephone number to establish a switched connection.

Coordinate this with the remote site.

The possible responses are:

NO   The modem does not have the SNBU feature.

YES   The modem does have the SNBU feature.

Note: SNBU must be supported by the remote site if you select yes.

5. Station address

Specifies the hexadecimal address by which the local system is known to the remote system. Address must be between 04 and FE.

This prompt is required only if connection type is multipoint tributary.

Get this information from the remote site.

6. Line speed

Line speed is the rate in bits per second (bps) that the data travels over a data communications line.

Coordinate this with the remote site.

The possible responses are:

9600   This is the default.

line-speed   Valid line speeds are: 600, 1200, 2400, 4800, 7200, 9600, 14,400, 19,200, 48,000, 56,000, 57,600, and 64,000.

7. Switched connection type

Specifies whether the switched line is to be used for incoming calls, outgoing calls, or both.

This prompt is valid only if the Connection type prompt is switched point-to-point (SWTPP).

Coordinate this with the remote site.

The possible responses are:

BOTH   Used for both incoming and outgoing calls.

ANS   Only answer incoming calls.

DIAL   Only dial out.

8. Maximum buffer size

Specifies the maximum transmit and receive data buffer sizes in bytes.

Coordinate this with the remote site.

The possible responses are:

1024   This is the default.

buffer-size   The minimum buffer size you can specify is 8 bytes. The maximum buffer size you can specify is 8,192 bytes.

9. Character code

Specifies whether EBCDIC or ASCII character code is used on the line.

Coordinate this with the remote site.

The possible responses are:

EBCDIC   The line is EBCDIC.

ASCII   The line is ASCII.

10. Number of SYN characters

    The SYN character is used to establish and maintain synchronization and as a time-filler in the absence of any data or other control character. Two SYN characters is the standard.

    Coordinate this with the remote site.

    The possible responses are:

    2   Synchronization pattern is two consecutive SYN characters.

    4   Synchronization pattern is four consecutive SYN characters.

    Note: If you are configuring the 9404 System Unit system, you must choose 2.

11. Include STX character in LRC

    Specifies if you want to include the start of text (STX) control character in the longitudinal redundancy check (LRC) calculation. This only applies to lines using the ASCII character code.

    Coordinate this with the remote site.

    The possible responses are:

    NO   STX character is not included in the LRC calculation.

    YES   STX character is included in the LRC calculation.

    Note: If you are configuring the 9404 System Unit system, you must choose 2.

Controller Information

If you are planning to use this communications line to communicate with more than one location, you will need to fill out the Controller Information section for each location.

12. Connection type

    Specifies the type of line connection.

    Coordinate this with the remote site.

    The possible responses are:

    NONSWTPP   Line is nonswitched point-to-point.

    > **Note:** This value cannot be selected if you are using 3270 device emulation.

    SWTPP   Line is switched point-to-point.

    > **Note:** This value cannot be selected if you are using 3270 device emulation.

    MPTRIB   Line is multipoint tributary.

    > **Notes:**
    >
    > a. This value cannot be selected if you are using RJE.
    > b. This value must be selected if you are using 3270 device emulation.

13. Switched network backup

    This an optional feature for nonswitched modems and specifies whether the modem has the switched network backup feature (SNBU). The backup feature is used to bypass a broken nonswitched (leased line) connection by dialing a telephone number to establish a switched connection.

    Coordinate this with the remote site.

    The possible responses are:

    NO   The remote system modem does not have the SNBU feature.

    YES   The remote system modem does have the SNBU feature.

14. Application type

    Specifies the type of application this BSC controller is used for. This prompt must match the application type prompt for the line description.

    Coordinate this with the remote site.

    The possible responses are:

    PGM   A user-written program

    RJE   Remote Job Entry Facility

    EML   3270 device emulation

15. Initial connection

    Specifies the expected call direction.

    Coordinate this with the remote site.

    The possible responses are:

ANS   The AS/400 system only answers incoming calls.

DIAL   The AS/400 system only dials outgoing calls.

16. Switched connection number

For a switched connection, or for a nonswitched connection with switched network backup (SNBU), this is the telephone number of the remote controller that is dialed from the AS/400 system site to establish a connection. If automatic calling is used, the number is sent to the automatic calling unit; if manual calling is used, the number is displayed to the system operator for manual dialing.

Coordinate this with the remote site.

17. Local identifier

Specifies, for switched lines or nonswitched lines with switched network backup (SNBU), the name to be used as the AS/400 system identifier. The entry can be from 4 to 30 characters and must be entered in hexadecimal characters and the length must be even. If only 4 characters are specified, the first two characters must be the same as the last two.

An entry of NOID indicates that the AS/400 system has a null identifier when communicating with the controller.

Give this identifier to the remote site.

The possible responses are:

local-id   Identifies the local identifier.

NOID   The remote controller will accept a null identifier.

18. Remote identifiers

Specifies, for switched lines or nonswitched lines with switched network backup (SNBU), a list of up to 64 identifiers of remote BSC controllers. Each entry can be from 4 to 30 characters in length and must be entered in hexadecimal characters and the length must be even. If only 4 characters are specified, the first two characters must be the same as the last two.

Get this from the remote site.

The possible responses are:

remote-id   Specifies the remote identifiers.

NOID   The local controller (the AS/400 system) will accept a null identifier.

ANY   The AS/400 system will accept any identifier sent by the remote controller. It must be the last, or only entry in the list of identifiers.

19. RJE host type

Specifies the name of the host system to be used by RJE.

Get this from the remote site.

The possible responses are:

RES   The host is RES (Remote Entry System).

JES2   The host is JES2 (Job Entry Subsystem 2).

JES3   The host is JES3 (Job Entry Subsystem 3).

RSCS   The host is RSCS (Remote Spooling Communications System).

Note: This prompt is required only when the application type is RJE.

20. RJE host sign-on/log-on

Specifies the log-on information required by the host system.

Note: This prompt is required only when the application type is RJE.

Get this from the remote site.

Device Information

You will need to complete the Device Information section of the G planning form for each device you intend to attach to the controller.

Note: If all the devices are the same, complete one G form and then copy it for each like device.

21. Local location address

    Specifies the local location address for this BSC device. Specify a hexadecimal value of 00 through FE.

    Coordinate this with the remote site.

22. Connection type

    Specifies the type of line connection.

    Coordinate this with the remote site.

    The possible responses are:

    PP   Device is connected to a point-to-point line.

    MPTRIB   Device is connected to a multipoint tributary line.

23. Application type

    Specifies which application type will be used by this device.

    Coordinate this with the remote site.

    The possible responses are:

    BSCEL   The application is Binary Synchronous Communications Equivalence Link (BSCEL). This value is specified to communicate with other BSC systems or devices using ICF support. Additional definition of the BSCEL operating environment is made using the remote BSCEL prompt.

    RJE   Application is Remote Job Entry Facility (RJEF).

    EML   Application is 3270 device emulation.

    BSC38   Application is a System/38 environment. This value is specified for a device that will communicate with other BSC systems or devices when the application used a BSC device file or mixed-device file which is used in the System/38 environment.

24. Contention resolution winner

    Specifies which BSC station is primary and which is secondary, in order to resolve contention for BSC point-to-point and multipoint lines.

    Coordinate this with the remote site.

    SEC   The local AS/400 system will be the secondary station and will yield to the other station when line contention occurs. SEC is the default value and must be specified if the application type prompt is EML.

    PRI   The local AS/400 system will be the primary station. PRI is invalid if the application prompt is EML.

25. Blocking type

    Specifies whether the system or user blocks and deblocks transmitted records.

Note: This prompt is valid only if the application type is BSCEL.

Coordinate this with the remote site.

The possible responses are:

NONE	No blocking or deblocking is done by the system.
ITB	Records are to be blocked or deblocked, depending on the location of an intermediate text block (ITB) control character.
IRS	Records are to be blocked or deblocked, depending on the location of an inter-record separator (IRS) character.
NOSEP	No record separator character is contained in the transmission block sent to or received from the device. The system blocks and deblocks the records to a specific record length, as specified in the DDS format specifications.
USER	User program is to provide all control characters, including record separator characters, BSC framing characters, and transparency characters necessary to transmit records.
	Note: USER cannot be specified if the remote system is BSCEL.
SEP	Records are to be blocked or deblocked with a user-specified record separator character.

26. Separator character

Specifies a unique record separator character. The record separator character must be specified as 2 hexadecimal characters.

Note: This prompt is valid only if the application type is BSCEL.

Coordinate this with the remote site.

The possible responses are:

1E	If you do not specify a record separator character, hexadecimal 1E is used.
record-separator-character	The following is a list of BSC control characters that *must not* be used as record separator characters.

EBCDIC	BSC Control
01	SOH (Start of header)
02	STX (Start of text)
03	ETX (End of text)
10	DLE (Data link escape)
1D	IGS (Interchange group separator)
1F	ITB (Intermediate text block)
26	ETB (End-of-transmission block)
2D	ENQ (Enquiry)
32	SYN (Synchronization)
37	EOT (End-of-transmission)
3D	NAK (Negative acknowledgment)

27. Remote BSCEL

The remote program is a BSCEL type program.

Note: This prompt is valid only if the application type is BSCEL.

Coordinate this with the remote site.

The possible responses are:

YES The remote system can recognize BSCEL start and end commands, or the local system is expected to respond to BSCEL commands.

NO The remote system or device cannot recognize BSCEL commands.

28. Record length

Specifies the maximum record length allowed when communicating with this device. The maximum value for this prompt is 8192. The value must not exceed the block length value for this device and must not exceed the buffer size specified on the line that this device is attached to.

Note: This prompt is valid only if the application type prompt is BSCEL.

Coordinate this with the remote site.

The possible responses are:

512 This is the default.

record length The maximum length of records to be sent when using this device. The value must be at least the size of the largest record to be sent. Valid values are 1 through 8192.

29. Block length

Specifies the maximum block length allowed when communicating with this device. The maximum value for this is 8192. The value must not exceed the buffer size specified on the line that this device is attached to.

Note: This prompt is valid only if the application type prompt is BSCEL.

Coordinate this with the remote site.

The possible responses are:

512 This is the default.

block length This value specifies the maximum block length of records to be sent when using this device. The value must be at least the size of the largest record to be sent. Valid values are 1 through 8192.

30. Transmit in transparent mode

Specifies whether the text transparency feature is to be used when sending blocked records. The text transparency feature permits the transmission of all 256 EBCDIC characters. You should use this feature when transmitting packed or binary data fields.

Note: This prompt is valid only if the application type prompt is BSCEL.

Coordinate this with the remote site.

The possible responses are:

NO Text transparency feature is not used.

YES   Text transparency feature is used. YES is a valid value only when blocking type is NONE, NOSEP, or USER.

Notes:

a. If you specify transmit in transparent mode with blocking type of USER, BSCEL ignores the transparency indicator during write operations. You must give the correct controls with the data to receive transparent data. For example, you must first specify the data-link-escape (DLE) and start-of-text (STX) control characters. The system gives the remaining control characters for transparent data transmission.

b. YES is invalid if the character code is ASCII on the line that this device is attached to.

31. Compress and decompress data

Specifies whether blanks in BSC data are compressed for output and decompressed for input.

Note: This prompt is valid only if the application type is BSCEL.

Coordinate this with the remote site.

The possible responses are:

NO   No data compression or decompression is to occur.

YES   Data is to be compressed for output and decompressed for input.

32. Truncate trailing blanks

Trailing blanks are to be removed from output records.

Notes:

a. This prompt is valid only if the application type prompt is BSCEL.

b. YES cannot be specified if block type is NOSEP.

c. If block type is USER, this prompt is ignored and trailing blanks are always removed from output records.

Coordinate this with the remote site.

The possible responses are:

NO   Trailing blanks are not removed from output records.

YES   Trailing blanks are removed from output records.

33. Group separator

Specifies a separator for groups of data, such as data sets and files which contain data.

Note: This prompt is valid only if the application type is BSCEL.

Coordinate this with the remote site.

The possible responses are:

EOT   Transmission blocks ending with BSC control character (EOT) will be used as a data group separator.

OFCSYS   Transmission block ending with an end of text (ETX) control character will be used.

DEV3740   Null record (STXETX) will be used.

34. Emulated device

Specifies the type of 3270 device that is to be emulated.

Note: This prompt is valid only if the application type is EML.

Coordinate this with the host site.

The possible responses are:

3278   Emulates a 3278 display device.

3284   Emulates a 3284 printer device.

3286   Emulates a 3286 printer device.

3287   Emulates a 3287 printer device.

3288   Emulates a 3288 printer device.

3289   Emulates a 3289 printer device.

35. Emulated keyboard

Specifies the type of 3278 display keyboard to be emulated.

Note: This prompt is valid only if the application type is EML.

Coordinate this with the remote site.

The possible responses are:

UPPER   Emulated with uppercase characters only.

LOWER   Emulated with uppercase and lowercase characters.

36. Emulated numeric lock

Specifies whether the numeric shift lock is to be set automatically for numeric input fields received from the host system. This prompt is for data entry keyboards only.

Note: This prompt is valid only if the application type is EML.

Coordinate this with the remote site.

The possible responses are:

NO   Numeric shift lock is not set automatically.

YES   Numeric shift lock is set automatically.

37. Emulation work station

The emulation work station prompt associates an emulation device with a real display or printer device. The emulated device is reserved for use exclusively by that work station. If no device is specified, any work station can use the emulation device.

This is a local option.

Note: This prompt is valid only if the application type is EML.

What to Do When Forms F and G Are Complete

If you have additional BSC communications lines to plan for, return to page 33 and complete another BSC Communications Line planning form.

Or

If you have no other forms to fill out, go to Part 3, What to Do with Your Completed Communications Planning Forms.

Task 3. Planning for an Asynchronous Line

Asynchronous Communications Line Planning Forms

Determining which Asynchronous planning form to use is your first step in the planning process.

Step 1 — Choosing the Correct Asynchronous Planning Form

There are two planning forms that you could possibly use for a communications line using the Asynchronous protocol.

Locate the System Information Form (which you completed in Chapter 1 of the *Planning Guide — 9406* or the *Planning Guide — 9404*) and find the communications area of that form.

A System Information Form (Part 4)

Other Data Communications

Line Type	Connection Type	Controller Type	Device Type or Quantity	Modem	Physical Interface	Line Speed
ASYNC	Switched	ASYNC	ASYNC	5853	EIA 232/V.24	2400

Example

RSLC030-3

The first two columns should tell you which line type (for example ASYNC) and connection type (switched, nonswitched) this communications line uses. With this in mind, select the correct Asynchronous planning form from the list below. They are:

F7 Asynchronous Switched Line Communications planning form

F8 Asynchronous Nonswitched Point-to-Point Line Communications planning form

Go to Appendix A of this manual and make a copy of the master of the form you chose to use for this communications line. Use the copy to do your actual planning work.

Step 2 — Identifying the Modem

The Asynchronous planning form lists all the IBM modems that you could use with this line.

F7 — Asynchronous Switched Communications Line Planning Form

	To Modem Supplier					To Common Carrier			
Modem	Line Speed	Interface [1]	Duplex	Echo Support	Autodial Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service
5841	1200	EIA 232/V.24	Full	Yes	Serial	EQW5YF-15245-DM-E	0.9B	RJ11	See Note
5842	2400	EIA 232/V.24	Full	Yes	Serial	EQW5YF-15245-DM-E	0.9B	RJ11	See Note
5853	2400	EIA 232/V.24	Half	Yes	Serial		0.9B	RJ11	See Note
Non-IBM Modem									

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC014-5

Look on the System Information Form, communications section, to determine which modem you ordered for this communications line.

A — System Information Form (Part 4)

Other Data Communications

Line Type	Connection Type	Controller Type	Device Type or Quantity	Modem	Physical Interface	Line Speed
ASYNC	Switched	ASYNC	ASYNC	5853	EIA 232/V.24	2400

Example

RSLC030-3

Does the System Information Form have a modem listed for this line?

Yes   Continue with this step.

No   Go to "Step 3 — Ordering a Modem" on page 58.

On the Form F7, find the modem that matches the one listed on the System Information Form. Circle the entire line as shown in the example below.

F7   **Asynchronous Switched Communications Line Planning Form**

	To Modem Supplier					To Common Carrier			
Modem	Line Speed	Interface [1]	Duplex	Echo Support	Autodial Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service
5841	1200	EIA 232/V.24	Full	Yes	Serial	EQW5YF-15245-DM-E	0.9B	RJ11	See Note
5842	2400	EIA 232/V.24	Full	Yes	Serial	EQW5YF-15245-DM-E	0.9B	RJ11	See Note
5853	2400	EIA 232/V.24	Half	Yes	Serial		0.9B	RJ11	See Note
Non-IBM Modem									
___	___	___	___	___	___	___	___	___	___

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC031-4

Step 3 — Ordering a Modem

Are you going to order your modem from IBM or from a non-IBM modem supplier?

IBM Modem   Continue with this step.

Non-IBM Modem   Go to "Step 4 — Ordering a Non-IBM Modem" on page 59.

The System Information Form did not list a modem; you need to order one. Look at the Asynchronous planning form and locate the area labeled *To Modem Supplier*.

F7   Asynchronous Switched Communications Line Planning Form

	To Modem Supplier					To Common Carrier			
Modem	Line Speed	Interface [1]	Duplex	Echo Support	Autodial Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service
5841	1200	EIA 232/V.24	Full	Yes	Serial	EQW5YF–15245–DM–E	0.9B	RJ11	See Note
5842	2400	EIA 232/V.24	Full	Yes	Serial	EQW5YF–15245–DM–E	0.9B	RJ11	See Note
5853	2400	EIA 232/V.24	Half	Yes	Serial		0.9B	RJ11	See Note
Non-IBM Modem	___	___	___	___	___	___	___	___	___

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC032-4

This section of the Asynchronous planning form lists all the IBM modems you could use with this line. Make a choice of which modem suits your needs and circle the entire line that the modem type is recorded on.

Contact your IBM marketing representative and order the modem type that you have circled on the planning form.

Go to "Step 5 — Ordering a Communications Line from a Common Carrier" on page 60.

Step 4 — Ordering a Non-IBM Modem

The System Information Form did not list a modem; you need to order one. The Asynchronous planning form provides space for you to record the modem type and model number, and characteristics of a non-IBM modem. Contact the vendor of your non-IBM modem, record its type and characteristics on the planning form.

F7 Asynchronous Switched Communications Line Planning Form

	To Modem Supplier					To Common Carrier			
Modem	Line Speed	Interface [1]	Duplex	Echo Support	Autodial Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service
5841	1200	EIA 232/V.24	Full	Yes	Serial	EQW5YF-15245-DM-E	0.9B	RJ11	See Note
5842	2400	EIA 232/V.24	Full	Yes	Serial	EQW5YF-15245-DM-E	0.9B	RJ11	See Note
5853	2400	EIA 232/V.24	Half	Yes	Serial		0.9B	RJ11	See Note
Non-IBM Modem	___	___	___	___	___	___	___	___	___

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC033-4

Task 3. Planning for an Asynchronous Line **59**

Step 5 — Ordering a Communications Line from a Common Carrier

Look at the Asynchronous planning form and locate the area labeled *To Common Carrier*.

F7   **Asynchronous Switched Communications Line Planning Form**

	To Modem Supplier					To Common Carrier			
Modem	Line Speed	Interface [1]	Duplex	Echo Support	Autodial Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service
5841	1200	EIA 232/V.24	Full	Yes	Serial	EQW5YF-15245-DM-E	0.9B	RJ11	See Note
5842	2400	EIA 232/V.24	Full	Yes	Serial	EQW5YF-15245-DM-E	0.9B	RJ11	See Note
5853	2400	EIA 232/V.24	Half	Yes	Serial		0.9B	RJ11	See Note
Non-IBM Modem									

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

RSLC034-4

This area has several pieces of information that the common carrier needs to know.

Note: The common carrier will also want to know if your lines are switched or non-switched point-to-point. You can readily answer this by looking at the name of the form.

If you need more information, refer to the following for a complete description of communications line requirements and other planning information for the modem you selected:

- *5811-20, -28, 5812-10, -18, 5810 Modems Descriptions and Planning Guide*, GA33-0081

- *IBM 5810 Enclosure, 5811-10 and 5811-18 Modems, Planning, and Site Preparation Guide*, GA33-0033

- *IBM 5841 Guide to Operations*, GA27-3649

- Documentation for your non-IBM modem

Asynchronous Configuration Information

By gathering configuration information before your system arrives, the actual process of configuring your communications lines or networks is easier and less time consuming.

What Type of Configuration Information Is Needed?

The configuration planning process looks at these types of information:

- Line information
- Controller information
- Device information

    Note: For asynchronous configuration planning there are no device prompts that you have to plan for.

This information is detailed in two areas of the configuration planning form.

Where Do You Get Configuration Information?

You will have to exchange or get configuration information with the remote site (other end of the communications line) or a network provider. Only information that you can:

get

give

or coordinate

with the remote site or network provider is presented on the planning form.

The configuration process requires specific information about the communications line, controller, and device. The configuration planning form is a place you can record that information. In most cases, you need to contact someone at the remote site or the network provider to have that exchange of information take place.

Notes:

1. The configuration prompts on the G planning form are not a complete list of all of the configuration prompts that will be needed when the actual configuration is performed. A complete list of all the configuration prompts and their descriptions will be presented in the manual *Communications User's Guide*.

2. For asynchronous configuration planning there are no device prompts that you have to plan for.

Who Will Use the Completed Configuration Planning Forms?

The person who does the configuration is referred to these planning forms. Therefore, keep these completed configuration planning forms in a place where they will be available to the person doing the configuration tasks.

Getting Started on Form G3

Locate Form G3 in Appendix A. You will need this form to complete the configuration planning information for this Asynchronous communications line.

In addition to the planning form, is a numbered list (located on the following page) that describes the entries on the planning form and discusses the possible choices available to the person completing the planning forms.

Below is an example of an Asynchronous Configuration Information planning form. Notice that the first column on the planning form contains numbers starting with number 1 and proceeding in ascending order. This column of numbers corresponds to the list on the following page. Start with number 1 from the list and record your responses in the space supplied on the form. You will almost always have to contact someone at the remote site to get, give, or coordinate the information that the form asks for.

Before calling the remote site, you will probably want to have all your questions identified. This will result in fewer calls to the remote site.

G3 Asynchronous Configuration Information

Line ID _____

Line Information

	Prompt	Response
1	Connection type	
2	Switched network backup	
3	Data bits per character	
4	Type of parity	
5	Number of stop bits	
6	Duplex	
7	Echo support	
8	Line speed	
9	Switched connection type	
10	Flow control	
11	XON character	
12	XOFF character	
13	End-of-record table	

Controller Information

	Prompt	Response
14	Switched line	
15	Switched network backup	
16	Initial connection	
17	Switched connection number	
18	Remote verification	
19	Local location name	
20	Local identifier	

Device Information

For asynchronous line configuration there is no information to give, get, or coordinate with the remote site insofar as devices are concerned.

Example

RSLC008-5

Note: In the descriptions that follow, the response in boldface type is the default for that prompt.

Line Information

1. Connection type

   Specifies the type of line connection.

   Check the F planning form and coordinate this with the remote site.

   The possible responses are:

   NONSWTPP   Line is nonswitched point-to-point

   SWTPP   Line is switched point-to-point

2. Switched network backup

   This is an optional feature for nonswitched modems and specifies whether the modem has the switched network backup feature (SNBU). The backup feature is used to bypass a broken nonswitched (leased line) connection by dialing a telephone number to establish a switched connection.

   Note: This value needs to be selected only if the connection type selected was nonswitched point-to-point.

   Coordinate this with the remote site.

   The possible responses are:

   NO   Your modem does not have the SNBU feature.

   YES   Your modem does have the SNBU feature.

   Note: SNBU must be supported by the remote site if you select yes.

3. Data bits per character

   Specifies the number of data bits per character (excluding parity bit if any).

   Coordinate this with the remote site.

   The possible responses are:

   8   8 data bits per character

   7   7 data bits per character

4. Type of parity

   Specifies the type of parity for error checking (a parity bit is a binary digit inserted in each byte of data to make the arithmetic sum of all the digits, including the parity bit, always odd or always even).

   Coordinate this with the remote site.

   The possible responses are:

   NONE   No parity bit will be inserted in the data byte.

   ODD   The arithmetic sum of all the digits, including the parity bit, will be odd.

   EVEN   The arithmetic sum of all the digits, including the parity bit, will be even.

Notes:

    a. If 8 bits per character is selected, you must choose NONE.

    b. The value you select for parity must be the same value for the remote station.

5. Number of stop bits

Specifies the number of bits to be added to the end of each character.

Coordinate this with the remote site.

The possible responses are:

1	One stop bit will be added to each character.
2	Two stop bits will be added to each character.

Note: At line speeds of 300 bps or lower, 2 stop bits are recommended.

6. Duplex

Specifies whether request-to-send (RTS) should be permanently turned on (for full-duplex modems) or only when transmission is required (for half-duplex modems).

Coordinate with the remote site.

The possible responses are:

FULL	RTS is permanently turned on (for full-duplex modems).
HALF	RTS is turned on when transmission is required (for half-duplex modems).

    Note: Half-duplex can be specified if the modem you are using is full-duplex.

7. Echo support

Specifies whether the system should send back all characters that it receives to the remote system, or all characters up to end-of-record characters, or if echo should be stopped.

Coordinate this with the remote site.

The possible responses are:

NONE	No characters received will be echoed to the remote system.
ALL	All characters received will be echoed to the remote system.
CNTL	All characters received before the end-of-record characters will be echoed to the remote system.

8. Line speed

Specifies the rate in bits per second (bps) that data travels over a data communications line.

Coordinate this with the remote site.

The possible responses are:

1200	This is the default.
line-speed	Valid line speeds are: 50, 75, 110, 150, 300, 600, 1200, 2400, 4800, 7200, 9600, and 19,200 bps.

Note: Selection of a certain line speed is dependent on your modem and your system. Know what each will support before you select a value.

9. Switched connection type

Specifies whether the switched line is to be used for incoming calls, outgoing calls, or both.

Note: This prompt is valid only if the connection type selected was switched point-to-point or the line has the switched network backup feature (SNBU).

Coordinate this with the remote site.

The possible responses are:

BOTH   Used for both incoming and outgoing calls.

ANS   Only answer incoming calls.

DIAL   Only dial out.

10. Flow control

Specifies whether the system will automatically create or respond to XON/XOFF characters.

Coordinate this with the remote site.

The possible responses are:

NO   Prevents the system from creating or recognizing flow control characters.

YES   Select if the system should use the flow control capabilities of the asynchronous communications type. If you specify YES, the system will recognize flow control characters. This means that when the system receives an XOFF character, the system stops sending until an XON character is received. It also means that the system sends an XOFF character to the remote location when it is incapable of receiving more than 4 characters. When the system is again able to receive at least 5 characters, it will send an XON character to the remote system.

11. XON character

Note: This value needs to be selected only if the flow control response selected was YES.

Specifies the hexadecimal value of the flow control character XON. This character will be stripped from the receive buffer before the data is sent to the user.

Coordinate this with the remote site.

The possible responses are:

11   This is the default.

XON character   The XON character can be any value you choose; however, you should choose a character that does not appear in your normal data stream, such as hexadecimal 20 (ASCII blank).

Notes:

a. You cannot make your XON and XOFF characters the same.

b. The XON and XOFF characters should not be the same as any character defined in the end-of-record table.

12. XOFF character

Specifies the hexadecimal value of the flow control character XOFF. This character will be stripped from the receive buffer before the data is sent to the user.

Coordinate this with the remote site.

The possible responses are:

13	This is the default.
XOFF character	The XOFF character can be any value you choose; however, you should choose a character that does not appear in your normal data stream, such as hexadecimal 20 (ASCII blank).

Notes:

a. You cannot make your XON and XOFF characters the same.

b. The XON and XOFF characters should not be the same as any character defined in the end-of-record table.

13. End-of-record table

The EOR table allows the system to recognize logical records, when receiving variable length records. The EOR table is specified as a set of pairs, where the first element of a pair is the EOR character and the second element specifies the number of characters that follow the EOR character. Up to eight entries can be specified.

Coordinate this with the remote site.

The possible responses are:

EOR character	Valid end-of-record characters are in the range hexadecimal 01 through 7F (if 7 bits-per-character) or 01 through FF (if 8 bits-per-character). End-of-record characters should be specified as they will appear on the line after any translation by the asynchronous communications support.
Number of trailing characters	Number of trailing characters specifies the number of additional characters to be received after the end-of-record character is detected. The number of trailing characters can be 0 through 4.

Controller Information

If you are planning to use this communications line to communicate with more than one location, you will need to fill out the Controller Information section for each location.

14. Switched line

    Specifies whether the controller will be attached to a switched line.

    Check the F planning form and coordinate this with the remote site.

    The possible responses are:

    NO   The line will not be switched.

    YES   The line will be switched.

15. Switched network backup

    For nonswitched modems, specifies whether the modem has the switched network backup feature. The backup feature is used to bypass a broken non-switched (leased line) connection by dialing a telephone number to establish a switched connection.

    Coordinate this with the remote site.

    The possible responses are:

    NO   The remote system modem does not have the SNBU feature.

    YES   The remote system modem does have the SNBU feature.

16. Initial connection

    Specifies the expected call direction.

    Coordinate this with the remote site.

    The possible responses are:

    ANS   The AS/400 system only answers incoming calls.

    DIAL   The AS/400 system only dials outgoing calls.

17. Switched connection number

    Specifies the telephone number used to dial the remote system.

    Get this information from the remote site.

18. Remote verification

    This prompt determines whether the remote system requires verification of local location name and local identifier at connection time.

    Coordinate this with the remote site.

    YES   The remote system will verify the local location name and local identifier at connection time.

    NO   The remote system will not verify the local location name and local identifier at connection time.

19. Local location name

    The name which, when combined with the local identifier, identifies your controller to a remote system. This name must be the same name as that specified by the remote system in its remote location list.

    Maximum number of characters allowed for local location name is 8.

Coordinate this with the remote site.

20. Local identifier

   The identifier which, when combined with the local location name, identifies your controller to a remote system. This identifier must be the same identifier as that specified by the remote system in its remote location list.

   Maximum number of characters allowed for the local identifier is 8.

   Coordinate this with the remote site.

What to Do When Forms F and G Are Complete

If you have additional Asynchronous Communications Networks to plan for, return to page 55 and complete another Asynchronous Communications Network planning form.

Or

If you have no other forms to fill out, go to Part 3, What to Do with Your Completed Communications Planning Forms.

Task 4. Planning for an X.25 Line

There is not an F planning form to fill out for an X.25 communications network.

The X.25 Network Provider

When you ordered your system, you determined that you would require or like to use an X.25 communications network. There are several companies that provide an X.25 packet-switching data network (PSDN). Work with your IBM marketing representative to determine an X.25 network provider.

Your network provider should make sure that you have the necessary modem, network line, line termination (jacks), and any other physical equipment required by the packet-switching data network (PSDN). Continue the planning task by starting with the X.25 Configuration Information section on the next page.

X.25 Configuration Information

By gathering configuration information before your system arrives, the actual process of configuring your communications lines or networks will be easier and less time-consuming.

What Type of Configuration Information Is Needed?

The configuration planning process looks at these types of information:

- Line information
- Controller information
- Device information

This information is detailed in three distinct areas of the configuration planning form.

Note: The controller and device areas of the planning form contain several choices for you to choose from. If you cannot recall which controller and which device type you want to configure for this line, see the System Information Form.

Where Do You Get Configuration Information?

You will have to exchange or get configuration information with the remote site (other end of the communications line) or a network provider. Only information that you can:

get

give

or coordinate

with the remote site or network provider is presented on the planning form.

The configuration process requires specific information about the communications line, controller, and device. The configuration planning form is a place you can record that information. In most cases, you will need to contact someone at the remote site or the network provider to have that exchange of information take place.

Note: The configuration prompts on the G planning form are not a complete list of all of the configuration prompts that will be needed when the actual configuration is performed. A complete list of all the configuration prompts and their descriptions will be presented in the manual *Communications User's Guide*.

Who Will Use the Completed Configuration Planning Forms?

The person who performs the configuration is referred to these planning forms. Therefore, keep these filled out configuration planning forms in a place where they will be accessible to the person performing the configuration tasks.

Getting Started on Form G4

Locate Form G4 in Appendix A. You will need this form to complete the the configuration planning information for this X.25 communications network.

In addition to the planning form is a numbered list (located on the following pages) that describes the entries on the planning form and discusses the possible choices available to the person completing the planning forms.

Following is an example of an X.25 Configuration Information Planning Form. Notice that the first column on the planning form contains numbers starting with number 1 and proceeding in ascending order. This column of numbers corresponds to the list on the following page. Start with number 1 from the list and record your responses in the space provided on the form.

You almost always have to contact the network provider or someone at the remote site to get, give, or coordinate the information that the form asks for. Before calling the remote site you will probably want to have all your questions identified. This will result in less calls to the remote site.

Note: When you see *N/A* in a column on the planning form, it means that it is not applicable for a particular configuration and you do not need to record anything on the planning form.

G4 X.25 Configuration Information (Part 2)

Line ID_____

G4 X.25 Configuration Information (Part 1)

Line ID_____

	Prompt
24	X.25 link
25	X.25 logi
26	X.25 con
27	X.25 defa
28	X.25 defa
29	X.25 use
30	X.25 reve
31	User faci

	Prompt
32	Device ty
33	Device m
34	Keyboar
35	Local loc
36	Remote l
37	Remote
38	Local loc
39	Applicati
40	Maximun
41	Emulated
42	Emulated
43	Emulated
44	Emulatio
45	Program
46	Applicati
47	Host type
48	Record l
49	Block len
50	Default p

Line Information

	Prompt	Response
1	X.25 logical channel entries Logical channel ID: Logical channel type:	
2	Local network address	
3	Connection initiation	
4	Physical interface	
5	Line speed	
6	Exchange identifier	
7	X.25 default packet size	
8	Maximum packet size	
9	Modulus	
10	X.25 default window size	

Example

Controller Information

	Prompt	APPC	Async	Finance	Host	RWS
11	Controller type	N/A	N/A		N/A	
12	Controller model	N/A	N/A	N/A	N/A	
13	Character code		N/A			
14	Remote network identifier		N/A	N/A		N/A
15	Remote control point name		N/A	N/A		N/A
16	Exchange identifier		N/A	N/A	N/A	N/A
17	Initial connection					
18	Switched connection number					
19	Remote verification	N/A		N/A	N/A	N/A
20	Local location name	N/A		N/A	N/A	N/A
21	Local identifier	N/A		N/A	N/A	N/A
22	Data link role		N/A	N/A	N/A	N/A
23	X.25 network level		N/A			

RSLC009-7

Note: In the descriptions that follow, the response in boldface type is the default for that prompt.

Line Information

1. X.25 logical channel entries

   Logical channel entries describe to the AS/400 system the logical channels subscribed to from the network provider. For each logical channel entry you must specify the logical channel number (ID) and the logical channel type. This information is part of your network subscription.

   From your network subscription provider, obtain:

   - The logical channel IDs. You can have a maximum of 32 IDs. The logical channel ID consists of the logical channel group number (one hexadecimal character) and the logical channel number (two hexadecimal characters).

     Record each logical channel ID on Form G4.

   - The logical channel type. The values can be:

PVC	Permanent virtual circuit
SVCIN	Switched virtual circuit, incoming calls allowed
SVCOUT	Switched virtual circuit, outgoing calls allowed
SVCBOTH	Switched virtual circuit, both incoming and outgoing calls allowed

     On Form G4, record the logical channel type for each channel you will have with your X.25 network.

2. Local network address

   The local network address for this system. The local network address can be up to 15 digits.

   From the X.25 network supplier, obtain the local network address and record it on Form G4.

3. Connection initiation

   Specifies who starts the X.25 data link connection.

   From your X.25 network supplier, find out how the X.25 network handles link initiation. There are several ways the network handles link initiation.

   The possible responses are:

LOCAL	Local system initiates the connection and data terminal equipment ((DTE) and sends set asynchronous balanced mode (SABM) indicator).
REMOTE	Remote system initiates the connection and data communications equipment ((DCE), sends set asynchronous balanced mode (SABM)indicator, and expects unnumbered acknowledgment (UA) from data terminal equipment (DTE)).
WAIT	Local system waits, then initiates the connection and data terminal equipment ((DTE), waits for disconnect mode (DM) and then sends set asynchronous balanced mode (SABM) indicator and expects unnumbered acknowledgment (UA) from data communications equipment (DCE)).

4. Physical interface

Specifies the type of physical interface on the input/output adapter (IOA) communications port.

The possible responses are:

X21BISV24 X.21 bis/V.24 physical interface. This physical interface uses the EIA 232/V.24 communications cable.

X21BISV35 X.21 bis/V.35 physical interface. This physical interface uses the V.35 communications cable.

X21 X.21 physical interface. This physical interface uses the X.21 communications cable.

Specifies which type of electrical connection (cable) you have ordered to connect your computer to a modem.

The possible responses are:

   X21BISV24
   X21BISV35
   X21

5. Line speed

   Specifies the line speed in bits per second (bps).

   Get the line speed from the network provider and coordinate it with the remote site.

6. Exchange identifier

   Specifies, in hexadecimal characters, the Exchange identifier that is used to identify the local system to the remote system.

   Coordinate this with the remote site.

   The possible responses are:

   SYSGEN The AS/400 system will create the exchange identifier automatically.

   exchange ID Enter an exchange ID of 8 hexadecimal digits starting with 056.

7. X.25 default packet size

   Default packet size, in bytes, to be used on this network, as supported by the network supplier.

   Get this from your network supplier.

   The possible responses are:

   64
   128
   256
   512
   1024

8. Maximum packet size

   Maximum packet size to be used by any controller associated with this line.

   Get this from your network provider.

   The possible responses are:

DFTPKTSIZE   Same value as that specified for the default packet size prompt.

64

128

256

512

1024

Note: Must be greater than or equal to the value specified for the default packet size prompt.

9. Modulus

   The X.25 network supplier can tell you if you use modulus 8 or modulus 128.

   Get this from the network provider.

   The possible responses are:

   8
   128

10. X.25 default window size

    Default packet window size to be used for an X.25 network, as required by the network supplier. Values are 1 through 7 if you specified modulus 8, and values of 1 through 15 are valid if you specified modulus 128.

    Get this from the network provider.

    The possible responses are:

    2

    1 through 7 for modulus 8
    or 1 through 15 for modulus 128

Controller Information

If you are planning to use this communications line to communicate with more than one location, you will need to fill out the Controller Information section for each location.

11. Controller type

    Specifies the type of controller on this line.

    Contact the remote site to determine which controller is being used.

    If it is a Finance controller, the possible responses are:

    3694
    4701

    If it is a Remote Work Station (RWS) controller, the possible responses are:

    3174
    3274

12. Controller model

    For Remote Work Station controllers only, specifies the model number of the controller attached to this line.

    The model number is always 0.

13. Switched line

    Specifies whether the controller will be attached to a switched line.

    The possible responses are:

    NO   Controller is attached to a permanent virtual circuit (PVC).

    YES   Controller is attached to a switched virtual circuit (SVC).

14. Character code

    Character code this controller will be using.

    Coordinate this with the remote site.

    The possible responses are:

    EBCDIC
    ASCII

15. Remote network identifier

    Specifies the remote network identifier.

    Coordinate this with the remote site.

The possible responses are:

NETATR   Remote network identifier is taken from the local network identifier value configured in the AS/400 system network attributes.

NONE   No remote network identifier. This is valid only if the APPN capable prompt is no.

Remote network identifier   Obtain the remote system's network identifier.

16. Remote control point name

    The control point name of the remote system that you will communicate with.

    Contact the remote site for the control point name.

17. Exchange identifier

    Specifies, in hexadecimal characters, the exchange identifier that is used by the local system to identify the remote system.

    Contact the remote system to find out what the exchange identifier of that remote system is.

18. Initial connection

    This specifies the expected call direction. This must be coordinated with the remote system.

    The possible responses are:

    ANS   The AS/400 system only answers incoming calls.

    DIAL   The AS/400 system only dials outgoing calls.

19. Switched connection number

    Specifies the number used for this controller. This is the X.25 network address.

    Get this from the network provider and coordinate with the remote site.

20. Remote verification

    This prompt determines whether the remote system requires verification of local location name and local identifier at connection time.

    Coordinate this with the remote site.

    YES   The remote system will verify the local location name and local identifier at connection time.

    NO   The remote system will not verify the local location name and local identifier at connection time.

21. Local location name

    The name which, when combined with the local identifier, identifies your controller to a remote system. This name must be the same name as that specified by the remote system in it's remote location list.

    Maximum number of characters allowed for local location name is 8.

    Coordinate this with the remote site.

22. Local identifier

    The identifier which, when combined with the local location name, identifies your controller to a remote system. This identifier must be the same identifier as that specified by the remote system in it's remote location list.

Maximum number of characters allowed for the local identifier is 8.

Coordinate this with the remote site.

23. Data link role

    Specifies whether the remote system is to be the primary (controlling) station, the secondary (responding) station, or whether the systems will dynamically negotiate the primary and secondary roles.

    Note: This prompt is valid for APPC only.

    Coordinate this with the remote site.

    The possible responses are:

    NEG   The AS/400 system and the remote system negotiate which system is primary.

    PRI   The remote system is the primary station.

    SEC   The remote system is a secondary station.

24. X.25 network level

    From your network provider, find out what level (year) of the X.25 standards your network supports.

    The possible responses are:

        1980
        1984

    Note: There is no default choice.

25. X.25 link protocol

    From the remote system you are communicating with, find out what link level protocol is used. Your link level protocol and the remote link level protocol must match.

    Coordinate with the remote site.

    The possible responses are:

    QLLC   Qualified logical link control

    ELLC   Enhanced logical link control

26. X.25 logical channel ID

    If this controller is to use a permanent virtual circuit (PVC), specify the logical channel identifier to be used. This logical channel ID is defined in the line description.

    Note: If this controller is to use a switched virtual circuit (SVC), this value must not be specified.

    Get this from the X.25 logical channel entries prompt (number 1 prompt in this list).

27. X.25 connection password

    If this controller is to use a switched virtual circuit (SVC), specify a password. This password must match the password of the remote controller with which this controller will communicate. The password can be up to 8 characters in length.

Notes:

  a. This prompt is optional.

  b. The password, along with the switched connection number, must form a unique identifier. There can be only one controller on this system with this combination of password and connection number.

Coordinate this with the remote site.

28. X.25 default packet size

Specifies the default packet size, in bytes, to be used for this controller, as supported by the network supplier.

Get this from your network provider.

The possible responses are:

LIND   Use the value from the X.25 line.

64

128

256

512

1024

29. X.25 default window size

Specifies the default packet window size to be used for this controller as required by the network supplier. Values of 2 through 7 if you specified modulus 8, and values of 2 through 15 are valid if you specified modulus 128.

Get this from your network provider.

The possible responses are:

LIND   Uses the value from the X.25 line description prompt.

1 through 7 for modulus 8

2 through 15 for modulus 128

30. X.25 user group ID

Specifies a user group ID that, if known, allows you to belong to a closed user group. To access a closed user group, you need to contact that user group and obtain their user group ID.

Note: This prompt is valid only if the controller is being used on a switched virtual circuit (SVC).

Coordinate this with your network provider.

31. X.25 reverse charging

Specifies whether you can accept and/or request reverse charging.

Coordinate this with your network provider and the remote site.

The possible responses are:

NONE   No reverse charging is allowed.

REQUEST Reverse charging is requested for SVC-out connections.

ACCEPT   Reverse charging is accepted for SVC-in connections.

BOTH   If you call out on this SVC channel, you will be requesting reverse charging. If you receive an incoming call you will be asked to accept reverse charging.

32. User facilities

A string of hexadecimal digits to be sent to the network supplier to request additional services. The network supplier will have to provide you with a list of these user facilities and the string of hexadecimal digits. Record this string on Form G4.

Coordinate this with your network provider.

Device Information

You will need to complete the Device Information section of the G planning form for each device you intend to attach to the controller.

Note: If all the devices are the same, complete one G form and then copy it for each like device.

33. Device type

    Specifies the type of device.

    If you are configuring Finance devices, the possible responses are:

        3624
        3694
        4704

    If you are configuring display devices, the possible responses are:

        3277
        3278
        3279

    If you are configuring printer devices, you must specify:

        3287

    Note: There are no defaults.

34. Device model

    Specifies the model number of the device.

    For Finance devices, the model number is always 0.

    For display devices, the possible responses are:

        If the display is a 3277, the model can be NONE or DHCF.
        If the display is a 3278 or 3279, the model must be NONE.
        For printer devices, the model number is always 0.

35. Keyboard language type

    Possible choices are:

AGI	Austria/Germany Multinational
BLI	Belgium Multinational
CAI	Canada Multinational
DMI	Denmark Multinational
NWI	Norway Multinational
FNI	Finland Multinational
SWI	Sweden Multinational
FAI	France (AZERTY) Multinational
ITI	Italy Multinational
PRI	Portugal Multinational
SPI	Spain Multinational
SSI	Latin America Spanish-Speaking Multinational

36. Local location address

    Specifies the local location address for this device. This value is a hexadecimal field of 00 through FF.

    If the devices (displays or printers) are attaching to a 3174 or a 3274 remote work station controller, the valid values are hexadecimal 02 through 41.

Note: For a 3277 DHCF display, values are hexadecimal 00 through FF.

Coordinate this with the remote site.

37. Remote location name

    The name of the remote location associated with the remote system. For APPC, contact the remote location and obtain the remote location name (LU name). For other controllers, select an 8-character location name.

    Coordinate this with the remote site.

38. Remote network ID

    Specifies the remote network identifier.

    Note: This prompt is valid only for APPC.

    Coordinate this with the remote site.

    The possible responses are:

    NETATR   The remote network identifier will be taken from the network attribute.

    BLANK   The remote network identifier will be hexadecimal 40.

    remote-network-ID   Choose an 8-character remote network identifier.

39. Local location name

    Specifies the unique logical unit name that identifies the local system to remote devices. The name cannot be the same as that specified for the remote location name prompt. The combination of the local location name prompt and remote location name prompt must be unique.

    Possible responses are:

    NETATR   The local location name from the network attributes will be used as the local location name.

    local location name Enter the name by which the local system is to be known to the remote system.

    Note: This prompt is valid only for APPC.

40. Application type

    Specifies the type of application this device will be used for.

    Coordinate this with the remote site.

    The possible responses are:

    RJE   Remote Job Entry Facility

    EML   3270 device emulation

    PGM   A user-written program

41. Maximum length RU

    Specifies the maximum request unit (RU) length allowed

    Coordinate this with the remote site.

    The possible responses are:

    256   This is the default.

    CALC   The AS/400 system determines the best value to use.

maximum-length-RU   Enter a value, 256 through 4096, in increments of
                           256, to be used as the maximum length for incoming
                           request units.

Note: The valid values for display and printer devices are 241, 245, 247, and
CALC.

42. Emulated device

This determines what type of device is being emulated by the real device.

Coordinate this with the remote site.

The possible responses are:

3278   Emulates a 3278 display device.

3284   Emulates a 3284 printer device.

3286   Emulates a 3286 printer device.

3287   Emulates a 3287 printer device.

3288   Emulates a 3288 printer device.

3289   Emulates a 3289 printer device.

43. Emulated keyboard

Specifies the type of 3278 display keyboard to be emulated.

Note: This prompt is valid only if the application type is EML.

Coordinate this with the remote site.

The possible responses are:

UPPER   Emulated with uppercase characters only.

LOWER   Emulated with uppercase and lowercase characters.

44. Emulated numeric lock

Specifies whether the numeric shift lock is to be set automatically for numeric
input fields received from the host system. This prompt is for data entry key-
boards only.

Note: This prompt is valid only if the application type is EML.

Coordinate this with the remote site.

The possible responses are:

NO   Numeric shift lock is not set automatically.

YES   Numeric shift lock is set automatically.

45. Emulation work station

The emulation work station prompt associates an emulation device with a real
display or printer device. The emulated device is reserved for use exclusively by
that work station. If no device is specified, any work station can use the emu-
lation device.

This is a local option. Coordinate this with the remote site.

Note: This prompt is valid only if the application type is EML.

46. Program start request capable

If YES, this device is reserved for host call via a program start request. It cannot be acquired by a program on the local system.

The possible responses are:

NO   No program start request allowed.

YES   Program start request allowed.

47. Application identifier

Specifies the VTAM identifier of the CICS/VS or the IMS/VS host subsystem to be sent with the log-on message.

48. Host type

Specifies the type of host subsystem with which this session is to communicate.

The possible responses are:

IMS   The session is to communicate with IMS/VS.

CICS   The session is to communicate with CICS/VS.

IMSRTR   The session is to communicate with IMS/VS using the ready-to-receive option.

49. Record length

Specifies the maximum record length allowed when communicating with this device. The maximum value for this prompt is 32,767. The value must not exceed the block length value for this device and must not exceed the buffer size specified on the line that this device is attached to.

Coordinate this with the remote site.

The possible responses are:

512   This value is the default.

record length   The maximum length of records to be sent when using this device. The value must be at least the size of the largest record to be sent. Valid values are 1 through 32,767.

50. Block length

Specifies the maximum block length allowed when communicating with this device. The maximum value for this prompt is 32,767. The value must not exceed the buffer size specified on the line that this device is attached to.

Coordinate this with the remote site.

The possible responses are:

512   This is the default value.

block length   This value specifies the maximum block length of records to be sent when using this device. The value must be at least the size of the largest record to be sent. Valid values are 1 through 32,767.

51. Default program

The name of the program, and the library that the program is in, to be started if a program start request is received from the host without specifying a program name.

Coordinate this with the remote site.

What to Do When Form G Is Complete

If you have additional X.25 communications networks to plan for, return to page 69 and complete another X.25 communications network planning form.

Or

If you have no other forms to fill out, go to Part 3, What to Do with Your Completed Communications Planning Forms.

Task 5. Planning for a Token-Ring Line

Token-Ring Communications Network Planning Form

The AS/400 system uses the IBM Token-Ring Local Area Network to communicate with other systems and controllers. A token-ring network is a transport system for information between devices located on the same premises, such as an office building, a manufacturing plant, a hospital area, a university campus, or a geographically confined area.

Unique Token-Ring Communications Network Considerations

Although the AS/400 system uses a token-ring network as a communications type, there are some unique differences. They are:

* Token-ring communications network does not require a modem.

* Token-ring communications network does not require a communications line from a common carrier.

* A token-ring communications network requires the signal cable to be attached to a Multistation Access Unit (MAU).

Network Wiring and Multistation Access Units (MAUs)

You must install (or have installed) the Token-Ring network wiring and MAU(s). Consult your IBM Customer Support Center for vendor recommendations. In addition, many IBM publications are available for planning and installing the network wiring. Examples of such manuals are the *IBM Token-Ring Network Introduction and Planning Guide*, GA27-3677 and the *IBM Cabling System Planning and Installation Guide*, GA27-3361.

The IBM Token-Ring Network installed in buildings that have been wired with the IBM Cabling System is extremely flexible. Using this system, the IBM 8228 Multistation Access Unit is typically installed in a wiring closet. One MAU is required for every eight devices attached on the Token-Ring Network. Multiple MAUs can be linked together (with patch cables) for networks larger than eight devices.

Patch Cables

Patch cables are required to connect the MAU to a wiring closet receptacle. In addition, if you require multiple MAUs, one patch cable is required for each MAU to connect them in a closed ring.

Token-Ring Communications Network Planning Form

Below is an example of a Token-Ring Communications Network planning form. This form needs to be filled out completely. After the required information is recorded on the form, you will be ready to use the planning form to start the communications part of an order for your system.

To begin, you will need a copy of:

- Form F9, the Token-Ring Communications Network planning form
- Form G5, the Token-Ring Configuration Information form

You can locate a copy of these forms in Appendix A of this manual. To start, you will use Form F9 and then Form G5.

Notice that the Form F9 example below has a column of numbers on the left side. The numbers correspond to the list on the following page.

F9   **Token-Ring Communications Network Planning Form**

Line ID _____

1   Multistation Access Units (MAUs): _____

2   Patch Cables:

     2.4 Meters (8 feet)   How Many?   _____

     9.1 Meters (30 feet)   How Many?   _____

     22.9 Meters (75 feet)   How Many?   _____

3   45.7 Meters (150 feet)   How Many?   _____

     Name of Hardware Vendor: _____

Example

RSLC021-4

Following is a numbered list. The numbered list corresponds to the numbers on the example form. Read the list, make a choice from each category, and record that choice on the planning form.

1 Multistation Access Units (MAUs).

Each MAU supports eight devices.

To determine how many MAUs you have to order, you need to know what type of cabling you will be using.

Using Type 3 Media Filter cables (Telephone Twisted-Pair), you can connect 9 MAUs together. Therefore, the maximum number of devices you can have for each Token-Ring Network is 72 (9 MAUs X 8 devices per MAU).

Using the IBM cabling System, you can connect 32 MAUs together. Therefore, the maximum number of devices you can have for each token-ring network is 256 (32 MAUs X 8 devices per MAU).

Decide which cable type you will use and record the number of MAUs you will be ordering on Form F9.

2 Patch Cables.

Patch cables are used in the following places:

- To connect the multistation access units to the closet receptacle inside the wiring closet (one cable for each device or controller attached to the Token-Ring Network).

- To connect several multistation access units together (one for each unit).

- To extend other cables in the IBM cabling System. For example, you can use a patch cable to extend the adapter cable, thus allowing a work station to be positioned farther away from the wall receptacle.

Patch cables are available in four lengths.

- 2.64 meters (8 feet)
- 9.1 meters (30 feet)
- 24.75 meters (75 feet)
- 49.5 meters (150 feet)

Depending on your specific use of patch cables, determine how many of each length you will need. Record this on Form F9.

3 Name of Hardware Vendor.

Contact IBM or another vendor to order your MAUs and patch cables. Record the name of that vendor on Form F9.

Token-Ring Configuration Information

By gathering configuration information before your system arrives, the actual process of configuring your communications lines or networks will be easier and less time-consuming.

What Type of Configuration Information Is Needed?

The configuration planning process looks at these three types of information:

* Line information
* Controller information
* Device information

This information is detailed in three distinct areas of the configuration planning form.

Note: The controller and device areas of the planning form contain several choices for you to choose from. If you cannot recall which controller and which device type you want to configure for this line, see the System Information Form from your *Planning Guide — 9406* or *Planning Guide — 9404*.

Where Do You Get Configuration Information?

You will either be entering an existing or creating a new token-ring network. In either case, information has to be exchanged with the owner(s) of the systems, controllers (3174s), or personal computers in this network.

In most cases, this information will be addresses of the devices in the token-ring. The prompts listed in this section are of that type. Again, contact the owner of the device you want to communicate with, exchange address information, configure that address information, and you will be able to communicate with that device on the token-ring.

Note: The configuration prompts on the G planning form are not a complete list of all of the configuration prompts that will be needed when the actual configuration is performed. A complete list of all the configuration prompts and their descriptions will be presented in the manual *Communications User's Guide*.

Who Will Use the Completed Configuration Planning Forms?

The person who performs the configuration is referred to these planning forms. Therefore, keep these filled out configuration planning forms in a place where they will be accessible to the person performing the configuration tasks.

Getting Started on Form G5

Locate Form G5. You will need this form to complete the configuration planning information for this token-ring communications network.

Working with the planning form is a numbered list (located on the following page) that describes the entries on the planning form and discusses the possible choices available to the person completing the planning forms.

Below is an example of a Token-Ring Configuration Information planning form. Notice that the first column on the planning form contains numbers starting with number 1 and proceeding in ascending order. This column of numbers corresponds to the list on the following page. Start with number 1 from the list and record your responses in the space provided on the form.

Note: When you see *N/A* in a column on the planning form, it means that it is not applicable for a particular configuration and you do not need to record anything on the planning form.

G5 Token-Ring Network Configuration Information
Line ID————————————————————

Line Information

	Prompt	Response
1	Maximum number of controllers	
2	Maximum frame size	
3	Token-ring network adapter address	
4	Source service access points	
5	Exchange identifier	

Controller Information

	Prompt	APPC	Host	RWS
6	Controller type	N/A	N/A	
7	Controller model	N/A	N/A	
8	Character code			
9	Maximum frame size			N/A
10	Remote network identifier			N/A
11	Remote control point name			N/A
12	Exchange identifier			N/A
13	Initial connection			
14	Token-ring network adapter address			
15	Token-ring network destination service access point			
16	Token-ring network source service access point			

Device Information

	Prompt	APPC	Host	SNUF	Display	Printer
17	Device type	N/A	N/A	N/A		
18	Device model	N/A	N/A	N/A		
19	Keyboard language type	N/A	N/A	N/A		N/A
20	Local location address					
21	Remote location name	·			N/A	N/A
22	Local location name		N/A	N/A	N/A	N/A
23	Remote network identifier		N/A	N/A	N/A	N/A
24	Application type	N/A		N/A	N/A	N/A
25	Maximum length request unit	N/A		N/A	N/A	N/A
26	Emulated device	N/A		N/A	N/A	N/A
27	Emulated keyboard	N/A		N/A	N/A	N/A
28	Emulated numeric lock	N/A		N/A	N/A	N/A
29	Emulation work station	N/A		N/A	N/A	N/A
30	Program start request capable	N/A	N/A		N/A	N/A
31	Application identifier	N/A	N/A		N/A	N/A
32	Host type	N/A	N/A		N/A	N/A
33	Record length	N/A	N/A		N/A	N/A
34	Block length	N/A	N/A		N/A	N/A
35	Default program	N/A	N/A		N/A	N/A

Note: You may copy as necessary.

RSLC037-5

Note: In the descriptions that follow, the response in boldface type is the default for that prompt.

Line Information

1. Maximum number of controllers

   The maximum number of controllers (logical stations) that this network will support. Specify a number large enough to account for all of the controllers that are currently active to this network, and for those controllers that you know will be active in the near future.

   The possible responses are:

   40

   Maximum number-of-controllers   This can range from 1 through 256.

2. Maximum frame size

   Specifies the largest piece of data that can be sent to, or received from, a remote station on the token-ring at any time. The larger the frame size, the more efficient the data transfer.

   The possible responses are:

   265
   521
   1033
   1994

3. Token-ring network adapter address

   The possible responses are:

ADPT	You will use the preset token-ring default address for this system in this token-ring network.
local-adapter-address	You assign an address of your choice to this system in this token-ring network. Valid values are hexadecimal 400000000000 through 7FFFFFFFFFFF.
	Note: Another unit in this network (system, PC, controller), attached to this ring, must use this value as the address in order to communicate with this system.

4. Source service access points (SSAP)

   The possible responses are:

SYSGEN	The AS/400 system will assign SSAP of hexadecimal 04, which is a common token-ring architected SSAP.
SSAP	1 through 16 SSAP's can be specified. This is the set of service access points over which data is received and transmitted. The address must be from hexadecimal 04 through 9C and in multiples of 4. For example, 7C is a valid choice.
	The SSAP values that you choose have to be used in configuring the controller DSAP prompt at the controller level attached to this network.

5. Exchange identifier

   Specifies, in hexadecimal characters, the exchange identifier that is used to identify the local system to the remote system.

Coordinate this with the remote site.

The possible responses are:

SYSGEN   The AS/400 system will create the exchange identifier.

exchange-ID   Enter an exchange identifier of 8 hexadecimal digits starting with 056.

Controller Information

If you are planning to use this communications line to communicate with more than one location, you will need to fill out the Controller Information section for each location.

6. Controller type

   Specifies the type of controller on this line.

   Contact the remote site to determine which controller is being used.

   The only response is 3174.

7. Controller model

   Specifies the model number of the controller which is attached to this line.

   The model number is always 0.

8. Character code

   Character code this controller will be using.

   Coordinate this with the remote site.

   The possible responses are:

   EBCDIC
   ASCII

9. Maximum frame size

   Specifies the maximum frame size that the controller will accept.

   Coordinate with the remote site.

   The possible responses are:

   LINKTYPE   A maximum frame size of 521 will be used.
   265
   521
   1033
   2057

   Note: The maximum frame size should be less than or equal to the maximum frame size specified on the line.

10. Remote network identifier

    Specifies the remote network identifier.

    Coordinate this with the remote site.

    The possible responses are:

NETATR	Remote network identifier is taken from the local network identifier value configured in the AS/400 system network attributes.
NONE	No remote network identifier. This is valid only if the APPN-capable response is no.
Remote network identifier	Obtain the remote system's network identifier.

11. Remote control point name

    The control point name of the remote system that you will communicate with.

    Contact the remote site for the control point name.

12. Exchange identifier

    Specifies, in hexadecimal characters, the exchange identifier that is used by the local system to identify the remote system.

    Contact the remote system to find out what the exchange identifier of that remote system is.

13. Initial connection

    Specifies the expected call direction. This must be coordinated with the remote system.

    The possible responses are:

    DIAL   The AS/400 system only dials outgoing calls.

    ANS   The AS/400 system only answers incoming calls.

14. Token-ring network adapter address

    If you want to communicate with other controllers on this network, you must get the address of those controllers.

    To find out these addresses, you have to contact the person responsible for the system unit or controller that this controller represents.

15. Token-ring network destination service access point

    Specifies the service access point (a logical address) of the remote station (system, PCS, and controllers) which this controller represents.

    If you want to communicate with other controllers on this network, you must get the address of those controllers. You will be asked to enter these addresses at configuration time.

    To find out these addresses, you will to contact the person responsible for the system unit or controller that this controller represents.

    The possible responses are:

    04   This is the default.

    DSAP   The destination service access point.

16. Token-ring network source service access point

    The source service access point (a logical address) that this connection uses in its connection to the remote station.

    The possible responses are:

    04

    SSAP   This is the service access point over which you will receive and transmit data. The address must be from hexadecimal 04 through 9C and in multiples of 4. For example, 7C is a valid choice.

        You must have configured, at the network level (SSAP parameter), this value as an SSAP.

Device Information

You will need to complete the Device Information section of the G planning form for each device you intend to attach to the controller.

Note: If all the devices are the same, complete one G form and then copy it for each like device.

17. Device type

    Specifies the type of device.

    If you are configuring display devices, the possible responses are:

    > 3277
    > 3278
    > 3279

    If you are configuring printer devices, you must specify:

    > 3287

    Note: There are no defaults.

18. Device model

    Specifies the model number of the device.

    For display devices, the possible responses are:

    > If the display is a 3277, the model can be NONE or DHCF.
    > If the display is a 3278 or 3279, the model must be NONE.
    > For printer devices, the model number is always 0.

19. Keyboard language type

    Possible choices are:

AGI	Austria/Germany Multinational
BLI	Belgium Multinational
CAI	Canada Multinational
DMI	Denmark Multinational
NWI	Norway Multinational
FNI	Finland Multinational
SWI	Sweden Multinational
FAI	France (AZERTY) Multinational
ITI	Italy Multinational
PRI	Portugal Multinational
SPI	Spain Multinational
SSI	Latin America Spanish-Speaking Multinational

20. Local location address

    Specifies the local location address for this device. This value is a hexadecimal field of 00 through FF.

    If the devices (displays or printers) are attaching to a 3174 or a 3274 remote work station controller, the valid values are hexadecimal 02 through 41.

    Note: For a 3277 DHCF display, values are hexadecimal 00 through FF.

Coordinate this with the remote site.

21. Remote location name

    The name of the remote location associated with the remote system. For APPC, contact the remote location and obtain the remote location name (LU name). For other controllers, select an 8-character location name.

    Coordinate this with the remote site.

22. Local location name

    Specifies the unique logical unit name that identifies the local system to remote devices. The name cannot be the same as that specified for the remote location name prompt. The combination of the local location name prompt and remote location name prompt must be unique.

    Possible responses are:

    NETATR   The local location name from the network attributes will be used as the local location name.

    local location name Enter the name by which the local system is to be known to the remote system.

    Note: This prompt is valid only for APPC.

23. Remote network identifier

    Specifies the remote network identifier.

    Note: This prompt is valid only for APPC.

    Coordinate this with the remote site.

    The possible responses are:

    NETATR   The remote network identifier will be taken from the network attribute.

    BLANK   The remote network identifier will be hexadecimal 40.

    remote-network-ID   Choose an 8-character remote network identifier.

24. Application type

    Specifies the type of application this device will be used for.

    Coordinate this with the remote site.

    The possible responses are:

    RJE   Remote Job Entry Facility

    EML   3270 device emulation

    PGM   A user-written program

25. Maximum length request unit

    Specifies, in bytes, the maximum request unit (RU) length allowed.

    Coordinate this with the remote site.

    The possible responses are:

    256   This is the default.

    CALC   The AS/400 system determines the best value to use.

maximum-length-RU   Enter a value, 256 through 4096, in increments of 256, to be used as the maximum length for incoming request units.

26. Emulated device

This determines what type of device is being emulated by the real device.

Coordinate this with the remote site.

The possible responses are:

3278   Emulates a 3278 display device.
3284   Emulates a 3284 printer device.
3286   Emulates a 3284 printer device.
3287   Emulates a 3287 printer device.
3288   Emulates a 3288 printer device.
3289   Emulates a 3289 printer device.

27. Emulated keyboard

Specifies the type of 3278 display keyboard to be emulated.

Note: This prompt is valid only if the application type is EML.

Coordinate this with the remote site.

The possible responses are:

UPPER   Emulated with uppercase characters only.

LOWER   Emulated with uppercase and lowercase characters.

28. Emulated numeric lock

Specifies whether the numeric shift lock is to be set automatically for numeric input fields received from the host system. This prompt is for data entry keyboards only.

Note: This prompt is valid only if the application type is EML.

Coordinate this with the remote site.

The possible responses are:

NO   Numeric shift lock is not set automatically.

YES   Numeric shift lock is set automatically.

29. Emulation work station

The emulation work station prompt associates an emulation device with a real display or printer device. The emulated device is reserved for use exclusively by that work station. If no device is specified, any work station can use the emulation device.

This is a local option. Coordinate this with the remote site.

Note: This prompt is valid only if the application type is EML.

30. Program start request capable

If YES, this device is reserved for host call via a program start request. It cannot be acquired by a program on the local system.

The possible responses are:

NO   No program start request allowed.

YES   Program start request allowed.

31. Application identifier

   Specifies the VTAM identifier of the CICS/VS or the IMS/VS host subsystem to be sent with the log-on message.

32. Host type

   Specifies the type of host subsystem with which this session is to communicate.

   The possible responses are:

   IMS   The session is to communicate with IMS/VS.

   CICS   The session is to communicate with CICS/VS.

   IMSRTR   The session is to communicate with IMS/VS using the ready-to-receive option.

33. Record length

   Specifies the maximum record length allowed when communicating with this device. The maximum value for this prompt is 32,767. The value must not exceed the block length value for this device and must not exceed the buffer size specified on the line that this device is attached to.

   Coordinate this with the remote site.

   The possible responses are:

   512   This value is the default.

   record length   The maximum length of records to be sent when using this device. The value must be at least the size of the largest record to be sent. Valid values are 1 through 32,767.

34. Block length

   Specifies the maximum block length allowed when communicating with this device. The maximum value for this prompt is 32,767. The value must not exceed the buffer size specified on the line that this device is attached to.

   Coordinate this with the remote site.

   The possible responses are:

   512   This is the default value.

   block length   This value specifies the maximum block length of records to be sent when using this device. The value must be at least the size of the largest record to be sent. Valid values are 1 through 32,767.

35. Default program

   The name of the program, and the library that the program is in, to be started if a program start request is received from the host without specifying a program name.

   Coordinate this with the remote site.

What to Do When Forms F and G Are Complete

If you have additional Token-Ring communications networks to plan for, return to page 87 and complete another Token-Ring Communications Network planning form.

Or

If you have no other forms to fill out, go to Part 3, What to Do with Your Completed Communications Planning Forms.

Part 3. What to Do with Your Completed Communications Planning Forms

After completing Part 2 of this guide, you should have a set of at least two planning forms for each communications line that you have on your system (with the exception of X.25, which has no F planning form). Each set of planning forms consists of:

- One communications line planning form; this form label begins with an F.
- At least one configuration planning form; this form label begins with a G.

How to Use the Communications Planning Forms

What to Do with Form F

Form F contains the information that you need to provide to:

- The common carrier (usually the telephone company)
- The modem supplier

Common Carrier Ordering Information: You will need to contact the vendor that you choose to provide a telephone line for each communications line that you will have on your system. The information on the planning form will help the telephone company install the correct telephone line into your place of business.

Modem Ordering Information: You will need to contact a vendor that supplies modems for communications. The information on this part of the planning form is detailed. You can either contact your marketing representative and to order modems or you can choose another vendor to order modems. If you choose a non-IBM vendor, ensure that the modems meet all the characteristics listed on the planning form.

What to Do with Form G

Form G contains communications configuration information. This form is intended to be used by you (or someone at your place of business) to assist you during the actual configuration process.

In Conclusion

You have now completed all the data communications planning tasks. The information on the Form F will be used when you order a communications line from the common carrier and modems from a modem supplier. The information on Form G will be used during the configuration of your communications lines. Keep these forms available for later use.

Appendix A. Data Communications Planning Forms

This appendix contains a copy of all the data communications planning forms for the AS/400 system.

You will want to make copies of these forms for actual use in your planning work. When you remove the original for copying, remember to return it to this manual so that it will not get lost.

F1

SDLC Switched Communications Line Planning Form

Modem	Line Speed	To Modem Supplier					To Common Carrier			
		Interface [1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	Yes	Yes Via V.25 bis		0.9B	RJ11	See Note Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note Exclusion Key set with RJ36
Non-IBM Modem										

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

Note: You may copy as necessary.

RSLX01B-8

F2 SDLC Nonswitched Point-to-Point Communications Line Planning Form

	To Modem Supplier					To Common Carrier	
Modem	Line Speed	Interface [1]	Duplex	Diagnostic Support	NRZI Support	Line Termination (Jack) [2]	Type of Service
3833	2400	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3863 Model 1	2400	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3868 Model 1	2400	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3834	4800	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3864 Model 1	4800	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3868 Model 2	4800	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3865 Model 1	9600	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note
3868 Model 3	9600	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note
5865 Model 1	9600	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
5868 Model 51	9600	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
5866 Model 1	14,400	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note
5868 Model 61	14,400	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note
5821 DSU/CSU	2400-9600 56,000	EIA 232/V.35	Half	LPDA-1,2	Yes	WE404B	See Note
Non-IBM Modem							

Note: Contact your common carrier and order a leased line for the point-to-point nonswitched modems selected.
For U.S. and Canada, use AT&T Type 3002 basic channel or equivalent. For international, use four-wire normal quality line.
If your modem has a SNBU (switched network backup) feature, additional switched lines must be ordered. See your modem documentation
or sales representative for additional details.

[1] For additional interface support on AS/400, See Appendix B.
[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

Note: You may copy as necessary.

RSLX019-7

F3 SDLC Nonswitched Multipoint Communications Line Planning Form

	To Modem Supplier					To Common Carrier		
Modem	Line Speed	Interface [1]	Duplex	Diagnostic Support	NRZI Support	Line Termination (Jack) [2]	Type of Service	Control or Tributary
3833	2400	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note	Location Dependent
3863 Model 1	2400	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note	Location Dependent
3868 Model 1	2400	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note	Location Dependent
3834	4800	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
3864 Model 1	4800	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
3868 Model 2	4800	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
3865 Model 2	9600	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
3868 Model 4	9600	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
5865 Model 1	9600	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
5868 Model 51	9600	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
5866 Model 1	14,400	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
5868 Model 61	14,400	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
Non-IBM Modem	___	___	___	___	___	___	___	___

Note: Contact your common carrier and order a leased line for the multipoint nonswitched modems selected. For U.S. and Canada, use AT&T Type 3002 basic channel or equivalent. For international, use four-wire normal quality line.

[1] For additional interface support on AS/400, see Appendix B.
[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

Note: You may copy as necessary.

RSLX022-7

F4 BSC Switched Communications Line Planning Form

Modem	To Modem Supplier					To Common Carrier				
	Line Speed	Interface [1]	Duplex	Diagnostic Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA 232/V.24	Full	Local and Remote Loopback	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA 232/V.24	Full	Local and Remote Loopback	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA 232/V.24	Full	Local and Remote Loopback	N/A		0.9B	RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA 232/V.24	Half	LPDA-1, Local and Remote Loopback	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem										
	—	—	—	—	—	—	—	—	—	—

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

Note: You may copy as necessary.

RSLX017-8

Appendix A. Data Communications Planning Forms   **111**

F5 BSC Nonswitched Point-to-Point Communications Line Planning Form

Modem	To Modem Supplier Line Speed	Interface [1]	Duplex	Diagnostic Support	NRZI Support	Line Termination (Jack) [2]	To Common Carrier Type of Service
3833	2400	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3863 Model 1	2400	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3868 Model 1	2400	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3834	4800	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3864 Model 1	4800	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3868 Model 2	4800	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3865 Model 1	9600	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note
3868 Model 3	9600	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note
5865 Model 1	9600	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
5868 Model 51	9600	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note
5866 Model 1	14,400	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note
5868 Model 61	14,400	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note
5821 DSU/CSU	2400-9600 56,000	EIA 232/V.35	Half	LPDA-1,2	Yes	WE404B	See Note
Non-IBM Modem							

Note: Contact your common carrier and order a leased line for the point-to-point nonswitched modems selected.
For U.S. and Canada, use AT&T Type 3002 basic channel or equivalent. For international use four-wire normal quality line.
If your modem has a SNBU (switched network backup) feature, additional switched lines must be ordered. See your modem documentation
or sales representative for additional details.

[1] For additional interface support on AS/400, see Appendix B.
[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

Note: You may copy as necessary.

RSLX051-3

Appendix A. Data Communications Planning Forms **113**

F6 BSC Nonswitched Multipoint Communications Line Planning Form

Modem	To Modem Supplier					To Common Carrier		
	Line Speed	Interface[1]	Duplex	Diagnostic Support	NRZI Support	Line Termination (Jack)[2]	Type of Service	Tributary
3833	2400	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note	Location Dependent
3863 Model 1	2400	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note	Location Dependent
3868 Model 1	2400	EIA 232/V.24	Half	LPDA-1,2	Yes	WE404B	See Note	Location Dependent
3834	4800	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
3864 Model 1	4800	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
3868 Model 2	4800	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
3865 Model 2	9600	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
3868 Model 4	9600	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
5865 Model 1	9600	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
5868 Model 51	9600	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
5866 Model 1	14,400	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
5868 Model 61	14,400	EIA 232/V.24	Half	LPDA-1	Yes	WE404B	See Note	Location Dependent
Non-IBM Modem								

Note: This line must be ordered by the host system (not the AS/400) that supports BSC Control, for example, a S/370.

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

Note: You may copy as necessary.

RSLX052-3

Appendix A. Data Communications Planning Forms **115**

F7 Asynchronous Switched Communications Line Planning Form

Modem	To Modem Supplier						To Common Carrier			
	Line Speed	Interface [1]	Duplex	Echo Support	Autodial Support		FCC Registration	Ringer Equivalence	Line Termination (Jack) [2]	Type of Service
5841	1200	EIA 232/V.24	Full	Yes	Serial		EQW5YF-15245-DM-E	0.9B	RJ11	See Note
5842	2400	EIA 232/V.24	Full	Yes	Serial		EQW5YF-15245-DM-E	0.9B	RJ11	See Note
5853	2400	EIA 232/V.24	Half	Yes	Serial			0.9B	RJ11	See Note
Non-IBM Modem	—	—	—	—	—		—	—	—	—

Note: Contact your common carrier and order a normal voice grade (analog) switched line for the switched modems you selected.

[1] For additional interface support on AS/400, see Appendix B.

[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

Note: You may copy as necessary.

RSLX053-5

Appendix A. Data Communications Planning Forms   **117**

F8 Asynchronous Nonswitched Point–to–Point Communications Line Planning Form

| Modem | To Modem Supplier | | | | | To Common Carrier | |
	Line Speed	Interface [1]	Duplex	Echo Support	Line Termination (Jack) [2]	Type of Service
5811 Model 20	19,200	EIA 232/V.24	Full	No	WE404B	See Note
5811 Model 28	19,200	EIA 232/V.24	Full	No	WE404B	See Note
5812 Model 10	19,200	EIA 232/V.24	Full	No	WE404B	See Note
5812 Model 18	19,200	EIA 232/V.24	Full	No	WE404B	See Note
Non–IBM Modem						
___	___	___	___	___	___	___

Note: Contact your common carrier and order a leased line for the point–to–point nonswitched modems selected. For U.S. and Canada, use AT&T Type 3002 basic channel or equivalent. For international, use four–wire normal quality line.

[1] For additional interface support on AS/400, see Appendix B.
[2] Jacks are U.S. & Canada only; termination devices will vary for other countries.

Note: You may copy as necessary.

RSLX054–4

F9 Token-Ring Communications Network Planning Form

Line ID _____

Multistation Access Units (MAUs): _____

Patch Cables:

2.4 Meters (8 feet)	How Many?	_____
9.1 Meters (30 feet)	How Many?	_____
22.9 Meters (75 feet)	How Many?	_____
45.7 Meters (150 feet)	How Many?	_____

Name of Hardware Vendor: _____

Note: You may copy as necessary.

RSLX024-3

G1 SDLC Configuration Information (Part 1)

Line ID _____

Line Information

	Prompt	Response
1	Data link role	
2	Physical interface	
3	Connection type	
4	Switched network backup	
5	Exchange identifier	
6	NRZI data encoding	
7	Line speed	
8	Switched connection type	
9	Station address	
10	Maximum frame size	
11	Duplex	

Controller Information

	Prompt	APPC	Finance	Host	RWS
12	Controller type	N/A		N/A	
13	Controller model	N/A	N/A	N/A	
14	Switched line				
15	Switched network backup				
16	Character code				
17	Maximum frame size				N/A
18	Remote network identifier		N/A		N/A
19	Remote control point name		N/A		N/A
20	Exchange identifier			N/A	
21	SSCP identifier	N/A			
22	Initial connection				
23	Connection number				
24	Data link role		N/A	N/A	N/A
25	Station address				

Note: You may copy as necessary.

RSLX039-10

Appendix A. Data Communications Planning Forms **123**

SDLC Configuration Information (Part 2)

Line ID _____

	Prompt	APPC	Finance	SNUF	Host	Display	Printer
	Device Information						
26	Device type	N/A		N/A	N/A		
27	Device model	N/A	N/A	N/A	N/A		
28	Keyboard language type	N/A	N/A	N/A	N/A		N/A
29	Local location address						
30	Remote location name		N/A			N/A	N/A
31	Remote network identifier		N/A	N/A		N/A	N/A
32	Local location name		N/A	N/A	N/A	N/A	N/A
33	Application type	N/A	N/A	N/A		N/A	N/A
34	Maximum length request unit	N/A	N/A	N/A		N/A	N/A
35	Emulated device	N/A	N/A	N/A		N/A	N/A
36	Emulated keyboard	N/A	N/A	N/A		N/A	N/A
37	Emulated numeric lock	N/A	N/A	N/A		N/A	N/A
38	Emulation work station	N/A	N/A	N/A		N/A	N/A
39	Program start request capable	N/A	N/A		N/A	N/A	N/A
40	Application identifier	N/A	N/A		N/A	N/A	N/A
41	Host type	N/A	N/A		N/A	N/A	N/A
42	Record length	N/A	N/A		N/A	N/A	N/A
43	Block length	N/A	N/A		N/A	N/A	N/A
44	Default program	N/A	N/A		N/A	N/A	N/A

Note: You may copy as necessary.

RSLX040-13

G2 Binary Synchronous Communications Configuration Information (Part 1)

Line ID _____

Line Information

	Prompt	Response
1	Application type	
2	Physical interface	
3	Connection type	
4	Switched network backup	
5	Station address	
6	Line speed	
7	Switched connection type	
8	Maximum buffer size	
9	Character code	
10	Number of SYN characters	
11	Include STX character in LRC	

Controller Information

	Prompt	Response
12	Connection type	
13	Switched network backup	
14	Application type	
15	Initial connection	
16	Switched connection number	
17	Local identifier	
18	Remote identifiers	
19	RJE host type	
20	RJE host signon/logon	

Note: You may copy as necessary.

RSLX041-7

G2 Binary Synchronous Communications Configuration Information (Part 2)

Line ID _____

	Prompt	Response
21	Local location address	
22	Connection type	
23	Application type	
24	Contention resolution winner	
25	Blocking type	
26	Separator character	
27	Remote BSCEL	
28	Record length	
29	Block length	
30	Transmit in transparent mode	
31	Compress and decompress data	
32	Truncate trailing blanks	
33	Group separator	
34	Emulated device	
35	Emulated keyboard	
36	Emulated numeric lock	
37	Emulation work station	

Device Information

Note: You may copy as necessary.

RSLX042-6

G3 Asynchronous Configuration Information

Line ID _____

Line Information

	Prompt	Response
1	Connection type	
2	Switched network backup	
3	Data bits per character	
4	Type of parity	
5	Number of stop bits	
6	Duplex	
7	Echo support	
8	Line speed	
9	Switched connection type	
10	Flow control	
11	XON character	
12	XOFF character	
13	End-of-record table	

Controller Information

	Prompt	Response
14	Switched line	
15	Switched network backup	
16	Initial connection	
17	Switched connection number	
18	Remote verification	
19	Local location name	
20	Local identifier	

Device Information

For asynchronous line configuration there is no information to give, get, or coordinate with the remote site insofar as devices are concerned.

Note: You may copy as necessary.

RSLX043-7

G4 X.25 Configuration Information (Part 1)

Line ID _____

Line Information

	Prompt	Response

1	X.25 logical channel entries
	  Logical channel ID:
	
	  Logical channel type:	

2	Local network address	
3	Connection initiation	
4	Physical interface	
5	Line speed	
6	Exchange identifier	
7	X.25 default packet size	
8	Maximum packet size	
9	Modulus	
10	X.25 default window size	

Controller Information

	Prompt	APPC	Async	Finance	Host	RWS
11	Controller type	N/A	N/A		N/A	
12	Controller model	N/A	N/A	N/A	N/A	
13	Switched line					
14	Character code		N/A			
15	Remote network identifier		N/A	N/A		N/A
16	Remote control point name		N/A	N/A		N/A
17	Exchange identifier		N/A	N/A	N/A	N/A
18	Initial connection					
19	Switched connection number					
20	Remote verification	N/A		N/A	N/A	N/A
21	Local location name	N/A		N/A	N/A	N/A
22	Local identifier	N/A		N/A	N/A	N/A
23	Data link role		N/A	N/A	N/A	N/A
24	X.25 network level		N/A			

Note: You may copy as necessary.

RSLX037-11

G4 X.25 Configuration Information (Part 2)

Line ID _____

Controller Information (continued)

	Prompt	APPC	Async	Finance	Host
25	X.25 link protocol		N/A		
26	X.25 logical channel ID				
27	X.25 connection password		N/A		
28	X.25 default packet size				
29	X.25 default window size				
30	X.25 user group ID				
31	X.25 reverse charging				
32	User facilities				

Device Information

	Prompt	APPC	Async	Finance	Host	SNUF	Display	Printer
33	Device type	N/A	N/A	N/A	N/A	N/A		
34	Device model	N/A	N/A	N/A	N/A	N/A		
35	Keyboard language type	N/A	N/A	N/A	N/A	N/A		N/A
36	Local location address		N/A					
37	Remote location name		N/A	N/A			N/A	N/A
38	Remote network ID		N/A	N/A	N/A	N/A	N/A	N/A
39	Local location name		N/A	N/A	N/A	N/A	N/A	N/A
40	Application type	N/A	N/A	N/A		N/A	N/A	N/A
41	Maximum length request unit	N/A	N/A	N/A		N/A		
42	Emulated device	N/A	N/A	N/A		N/A	N/A	N/A
43	Emulated keyboard	N/A	N/A	N/A		N/A	N/A	N/A
44	Emulated numeric lock	N/A	N/A	N/A		N/A	N/A	N/A
45	Emulation work station	N/A	N/A	N/A			N/A	N/A
46	Program start request capable	N/A	N/A	N/A	N/A		N/A	N/A
47	Application identifier	N/A	N/A	N/A	N/A		N/A	N/A
48	Host type	N/A	N/A	N/A	N/A		N/A	N/A
49	Record length	N/A	N/A	N/A	N/A		N/A	N/A
50	Block length	N/A	N/A	N/A	N/A		N/A	N/A
51	Default program	N/A	N/A	N/A	N/A		N/A	N/A

Note: You may copy as necessary.

RSLX038-11

G5 Token-Ring Network Configuration Information

Line ID _____

Line Information

	Prompt	Response
1	Maximum number of controllers	
2	Maximum frame size	
3	Token-ring network adapter address	
4	Source service access points	
5	Exchange identifier	

Controller Information

	Prompt	APPC	Host	RWS
6	Controller type	N/A	N/A	
7	Controller model	N/A	N/A	
8	Character code			
9	Maximum frame size			N/A
10	Remote network identifier			N/A
11	Remote control point name			N/A
12	Exchange identifier			N/A
13	Initial connection			
14	Token-ring network adapter address			
15	Token-ring network destination service access point			
16	Token-ring network source service access point			

Device Information

	Prompt	APPC	Host	SNUF	Display	Printer
17	Device type	N/A	N/A	N/A		
18	Device model	N/A	N/A	N/A		
19	Keyboard language type	N/A	N/A	N/A		N/A
20	Local location address					
21	Remote location name				N/A	N/A
22	Local location name		N/A	N/A	N/A	N/A
23	Remote network identifier		N/A	N/A	N/A	N/A
24	Application type	N/A	N/A	N/A	N/A	N/A
25	Maximum length request unit	N/A		N/A	N/A	N/A
26	Emulated device	N/A		N/A	N/A	N/A
27	Emulated keyboard	N/A		N/A	N/A	N/A
28	Emulated numeric lock	N/A		N/A	N/A	N/A
29	Emulation work station	N/A		N/A	N/A	N/A
30	Program start request capable	N/A	N/A		N/A	N/A
31	Application identifier	N/A	N/A		N/A	N/A
32	Host type	N/A	N/A		N/A	N/A
33	Record length	N/A	N/A		N/A	N/A
34	Block length	N/A	N/A		N/A	N/A
35	Default program	N/A	N/A		N/A	N/A

Note: You may copy as necessary.

RSLX044-9

Appendix B. Data Communications Hardware and Configuration Guidelines

Use this appendix to become familiar with the data communications hardware and software that is supported on the AS/400 system, and as an aid in determining the number of communications lines that can be configured for the various models.

The AS/400 system offers a wide variety of communications and connectivity functions. Multiple networks are available: SNA, X.25, X.21, and IBM Token-Ring Network. Multiple environments are available:

- AS/400 system as a *host* system to:
  - Personal computers
  - Other AS/400 systems
  - System/36s
  - System/38s
- AS/400 system as a *peer* system to:
  - Other AS/400 systems
  - System/36s
  - System/38s
- AS/400 system as a *remote* system in a System/370-controlled network

Connectivity to IBM and non-IBM systems is provided by various communications types: asynchronous, bisynchronous, SDLC, and X.25. The 9404 System Unit can support as many as 8 communications lines with individual line speeds as high as 64,000 bps and one IBM Token-Ring Local Area Network operating at 4 million bps. The 9406 System Unit can support as many as 32 communications lines with individual line speeds as high as 64,000 bps, and two token-ring LANs operating at 4 million bps.

The following gives a partial list of current IBM systems and devices that may be attached to the AS/400 system through the integrated communications controllers and/or the IBM Token-Ring LAN:

- IBM Systems
  - 3090, 308X, 43XX, 9370
  - System/36, System/38, Series/1, System/88
  - Personal Computer, Personal Computer/XT^2, Personal Computer/XT-286, Personal Computer/AT®, Personal System/2^2, RT/PC^2
- IBM Controllers and Devices
  - 5251-12, 5294, 5394
  - 3174, 3274
  - 3725, 3745, 3708, 4701
- IBM Modems
  - 3863, 3864, 3865, 3868
  - 5811, 5812, 5841, 5842, 5853
  - 5821, 5822, 5865, 5866, 5868
- IBM 9751 and ROLM Redwood CBX (via twinaxial work station controller)

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9404 System Unit Communications Hardware

The hardware needed to support a communications line consists of a controller, an adapter, and a cable.

The controllers available on Models B10 and B20 are the Multiple Function I/O Processor and the Three-Line Communications Controller. These controllers are prerequisites for the adapters.

The adapters available are the EIA 232/V.24, the X.21, and the V.35 adapters. The adapters are connected to the controllers and come with communication cables.

The hardware needed to support attachment to the IBM Token-Ring Local Area Network consists of the Token-Ring Network Adapter, a combined controller and adapter, and the Token-Ring LAN cable.

Controllers and Processors

Three communications controllers/processors are supported on Models B10 and B20:

- Multiple Function Input/Output Processor (part of the base system)
- Three-Line Communications Controller (TLCC) (Feature 6150)
- Token-Ring Network Adapter (Feature 6160)

Each Model B10 or B20 can support one Multiple Function Input/Output Processor, one Token-Ring Network adapter, and one or two Three-Line Communications controllers concurrently.

The combination of one Multiple Function Input/Output Processor and two Three-Line Communications Controllers supports a total of eight communications lines on either model.

Multiple Function Input/Output Processor

This input/output processor is standard on both Models B10 and B20. It controls the service processor, disk devices/tape, diskette, and communications. The processor supports:

- Two communications lines using asynchronous, BSC, SDLC, and X.25 communications types

- A maximum of one line using X.25 at 9600 bps or less

- The following adapters:

    - EIA 232/V.24 Adapter (Feature 6152)
    - X.21 Adapter (Feature 6151)

- An aggregate line speed of 21,600 bps

Three-Line Communications Controller (TLCC) (Feature 6150)

This input/output processor is an optional feature on Models B10 and B20 and provides the basic control and common circuits for the associated communication adapters. The TLCC supports:

- Asynchronous, BSC, SDLC, and X.25 communications types

- The following adapters:

    - EIA 232/V.24 Adapter (Feature 6152)

- X.21 Adapter (Feature 6151)
- V.35 Adapter (Feature 6153)

• An aggregate line speed of 192,000 bps

Token-Ring Network Adapter (Feature 6160)

This is an input/output processor combined with an adapter and cable for attachment to the IBM Token-Ring LAN. The Token-Ring Network Adapter conforms to the IEEE 802.5 standard. One adapter is supported on Model B10 or B20. The Token-Ring LAN operates at 4 million bits per second.

Adapters

Three communication adapters are supported on Models B10 and B20:

• EIA 232/V.24 Adapter (Feature 6152)
• X.21 Adapter (Feature 6151)
• V.35 Adapter (Feature 6153)

EIA 232/V.24 Adapter (Feature 6152)

This feature consists of an adapter that can be attached to the Multiple Function Input/Output Processor or the Three-Line Communications Controller and supports:

• One communications line using asynchronous, BSC, SDLC, or X.25 communications types

• Full and half duplex

• The following cables:

- EIA 232/V.24 Enhanced Cable (Specify 9023)
- EIA 232/V.24 Cable (Specify 9022)

• Up to 19,200 bps

Each Model B10 or B20 has one EIA 232/V.24 Adapter and one EIA 232/V.24 Enhanced Cable as standard attached to the Multiple Function Input/Output Processor for use with the base communications offering.

X.21 Adapter (Feature 6151)

This feature consists of an adapter and cable that can be attached to the Multiple Function Input/Output Processor or the Three-Line Communications Controller and supports:

• One communications line using SDLC or X.25 communications types
• Full and half duplex
• Line speeds up to 64,000 bps
• An X.21/V.11 cable (20 foot)

V.35 Adapter (Feature 6153)

This feature consists of an adapter and cable that can be attached to the Three-Line Communications Controller only and supports:

• One communications line using BSC, SDLC, or X.25 communications types
• Full and half duplex
• Line speeds up to 64,000 bps
• V.35/X.21 bis
• A V.35 cable (20 foot)

Cables

EIA 232/V.24 Enhanced Cable (Specify 9023)

This 20-foot cable supports:

- EIA 232-C and 232-D
- V.24/X.21 bis
- V.25 bis for serial autodial modems (smart modems)
- Loopback diagnostics for IBM modems
- Remote power-on via telecommunications

This is the default cable and will be provided on 9404 System Unit orders unless the EIA 232/V.24 cable (specify 9022) is ordered.
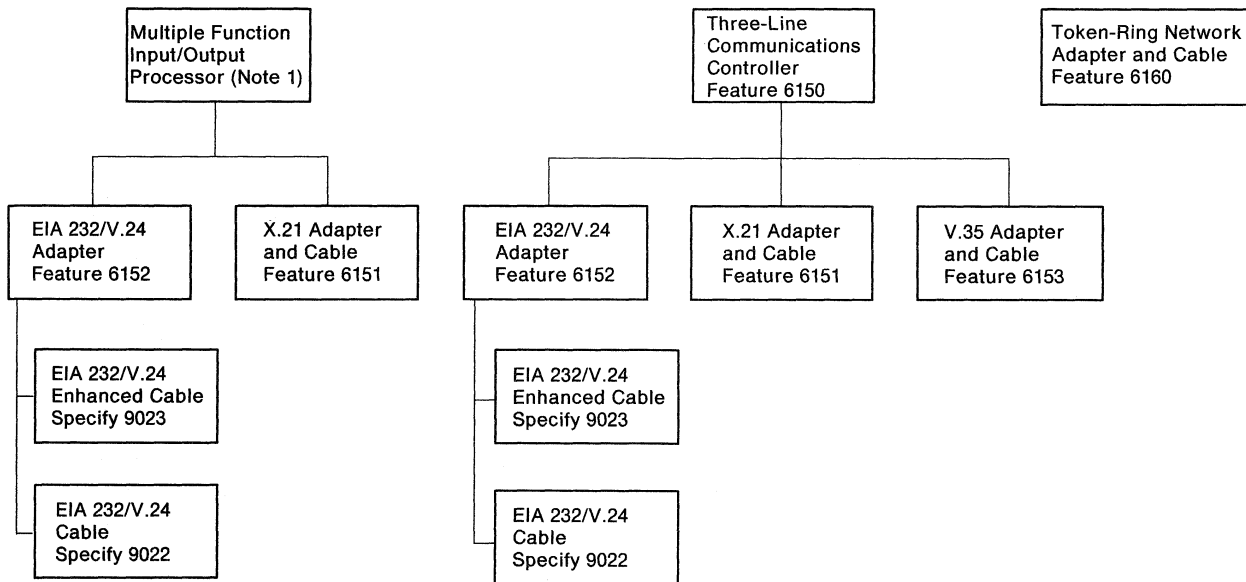
EIA 232/V.24 Cable (Specify 9022)

This 20-foot cable supports:

- EIA 232-C and 232-D
- V.24/X.21 bis
- V.25 bis for serial autodial modems (smart modems)
- Signal Quality Detect feature

This cable should only be used when the connection is to a modem that has the Signal Quality Detect feature or to a modem eliminator. Modems that have this feature are generally older models. Since current IBM and many non-IBM modems do not have the Signal Quality Detect feature, they do not require this cable.

The following graphic depicts the controllers, adapters, and cables for 9404 System Unit Models B10 and B20:

```
┌─────────────────────┐                          ┌─────────────────────┐              ┌─────────────────────┐
│Multiple Function    │                          │Three-Line           │              │Token-Ring Network   │
│Input/Output         │                          │Communications       │              │Adapter and Cable    │
│Processor (Note 1)   │                          │Controller           │              │Feature 6160         │
│                     │                          │Feature 6150         │              │                     │
└──────────┬──────────┘                          └──────────┬──────────┘              └─────────────────────┘
           │                                                │
     ┌─────┴─────┐                          ┌───────────────┼───────────────┐
     │           │                          │               │               │
┌──────────┐ ┌──────────┐            ┌──────────┐    ┌──────────┐    ┌──────────┐
│EIA 232/  │ │X.21      │            │EIA 232/  │    │X.21      │    │V.35      │
│V.24      │ │Adapter   │            │V.24      │    │Adapter   │    │Adapter   │
│Adapter   │ │and Cable │            │Adapter   │    │and Cable │    │and Cable │
│Feature   │ │Feature   │            │Feature   │    │Feature   │    │Feature   │
│6152      │ │6151      │            │6152      │    │6151      │    │6153      │
└────┬─────┘ └──────────┘            └────┬─────┘    └──────────┘    └──────────┘
     │                                    │
  ┌──┴────────┐                        ┌──┴────────┐
  │EIA 232/   │                        │EIA 232/   │
  │V.24       │                        │V.24       │
  │Enhanced   │                        │Enhanced   │
  │Cable      │                        │Cable      │
  │Specify    │                        │Specify    │
  │9023       │                        │9023       │
  └───────────┘                        └───────────┘
  ┌───────────┐                        ┌───────────┐
  │EIA 232/   │                        │EIA 232/   │
  │V.24       │                        │V.24       │
  │Cable      │                        │Cable      │
  │Specify    │                        │Specify    │
  │9022       │                        │9022       │
  └───────────┘                        └───────────┘
```

Note 1: The Multiple Function Input/Output Processor is part of the base system on Models B10 and B20. It does not have a feature code number.

RSLC036-6

Communications Configuration Guidelines for the 9404 System Unit

The following is a set of guidelines that can be used in determining the number of communications lines each AS/400 Model B10 or B20 can support. The HONE AS/400 configurator should be used to determine exact configurations.

Lines per Model

- The Multiple Function Input/Output Processor supports two lines.

- The Three-Line Communications Controller (TLCC) (Feature 6150) supports three lines.

- Each Model B10 or B20 supports as many as eight communications lines.

- The capability for one communications line for the IBM base communications subsystem comes standard on each model. It uses the EIA 232/V.24 interface and is installed on the processor. It is configured for a switched line using SDLC running at 2400 bps.

Aggregate Data Rate

- The Multiple Function Input/Output Processor has an aggregate rate of 21,600 bps.

- The Three-Line Communications Controller (TLCC) has an aggregate rate of 192,000 bps. Each line on the TLCC is capable of operating at speeds up to 64,000 bps. It is recommended that you limit the number of high-speed lines (48,000 bps and over) to one per TLCC. The remaining two lines are each capable of operating at 19,200 bps, provided the aggregate rate is not exceeded.

- When determining aggregate data rates, full duplex lines using X.25 or asynchronous support need to be doubled.

X.25 Line

- The Multiple Function Input/Output Processor supports one X.25 line operating at 9600 bps or less with from 1 to 16 virtual circuits.

- The Three-Line Communications Controller (TLCC) supports 3 X.25 lines operating at 19,200 bps or less with from 1 to 32 virtual circuits, or one X.25 line at 48,000 bps or greater with from 1 to 32 virtual circuits.

- The maximum number of virtual circuits per TLCC is 48.

Token-Ring Local Area Network

- Each Model B10 or B20 supports one attachment to the IBM Token Ring Local Area Network operating at 4 million bits per second.

Common 9404 System Unit Communications Information

- Switched and nonswitched point-to-point and multipoint lines are supported.

- X.25 lines are full duplex. Asynchronous lines can be full or half duplex. Full-duplex lines need to be doubled when determining aggregate data rates.

- Serial autodial modem support is provided by the EIA 232/V.24 Adapter. The V.25 bis command set is supported for asynchronous and SDLC call-related commands.

Serial autodial modems and one communications line is used to establish a switched connection. The System/36 and System/38 use the EIA 366/V.25 Automatic Calling Equipment and two communications lines for autocall. This two-line support is not available on the 9404 System Unit. Additionally, the serial autodial support on the 9404 System Unit is available only on asynchronous and SDLC lines; bisynchronous and X.25 lines are not supported.

- X.21 networks must be compatible with IBM's implementation of X.21 as described in the manual *IBM Implementation of X.21 General Information*, GA27-3287.

- X.25 communications on the 9404 System Unit will provide the capability to attach to packet-switched data networks having interfaces complying with Recommendation X.25 (1984) of the International Telegraph and Telephone Consultative Committee (CCITT). This interface support is in conformance with the functional description contained in IBM's *General Information Manual, The X.25 Interface for Attaching SNA Nodes to Packet-Switched Data Networks*, GA27-3345. Attachment to an X.25 network is via a nonswitched line through either an X.21, V.24/X.21bis, or V.35/X.21 bis interface.

Some X.25 guidelines are listed below:

- X.25 circuits can be permanent or switched virtual circuits.

- Concurrent primary/secondary SNA (SDLC equivalent) operation with one X.25 subscription.

- Maximum packet size of 64, 128, 256, 512, and 1,024 octets (bytes) can be specified.

- Modulo 8 format at the HDLC link level, Modulo 8, and 128 formats at the packet level.

- Support of all appropriate logical link control protocols for IBM SNA nodes operating in X.25 networks follow descriptions in *IBM General Information Manual*, GA27-3345 and SNA-0025. These include the QLLC and the enhanced LLC for improved end-to-end error recovery process handling.

9406 System Unit Communications Hardware

Communications for the 9406 System Unit Models B30, B40, B50, and B60 is provided by ten optional subsystems in addition to the base communications subsystem, which is standard on these models. Each subsystem consists of a communications controller, one or more communications adapter cards, and the appropriate number of cables to support two, four, or eight communications lines. Your selection of a subsystem will depend on the number of lines needed to meet your current and future needs, the interface to the modem or network, and the number of high-speed lines that are required. The number of high speed lines supported are two, four, six, and eight on the Models B30, B40, B50, and B60, respectively. Each model will support one or more communication subsystems depending on the amount of card slots that are available in the subsystem and any expansion racks.

Two-Line Subsystem (Feature 6230)

This feature consists of a communications controller, adapter, and cables that support two lines. Communications types supported are asynchronous, bisynchronous, SDLC and X.25.

Two EIA 232/V.24 Enhanced cables (20-foot) are provided. They support:

- EIA 232-C and 232-D

- V.24/X.21bis
- V.25 bis for serial autodial modems (smart modems)
- Loopback diagnostics for IBM modems
- Line speeds up to 19,200 bps

Select this subsystem if you need a minimum number of lines and do not anticipate growth in the number of lines in the future.

Four-Line Subsystem (Feature 6231)

This feature consists of a communications controller, adapter cards, and cables that support four lines. Communications types supported include asynchronous, bisynchronous, SDLC, and X.25, with a maximum of three X.25 lines operating concurrently.

Four EIA 232/V.24 Enhanced cables (20-foot) are provided. They support:

- EIA 232-C and 232-D
- V.24/X.21 bis
- V.25 bis for serial autodial modems (smart modems)
- Loopback diagnostics for IBM modems
- Line speeds up to 19,200 bps

Select this subsystem if you need a minimum number of lines currently, but anticipate additional lines in the future.

Eight-Line Subsystem (Feature 6232)

This feature consists of a communications controller, adapters, and cables that support eight lines. Communications types supported include asynchronous, bisynchronous, SDLC, and X.25, with a maximum of three X.25 lines operating concurrently, or a maximum of six bisynchronous lines operating concurrently.

Eight EIA 232/V.24 Enhanced cables (20-foot) are provided. They support:

- EIA 232-C and 232-D
- V.24/X.21 bis
- V.25 bis for serial autodial modems (smart modems)
- Loopback diagnostics for IBM modems
- Line speeds up to 19,200 bps

Select this subsystem if you need the maximum number of lines for current and future requirements.

Two-Line X.21 Subsystem (Feature 6233)

This feature is primarily offered in countries other than the United States and consists of a controller, adapter, and cables that support two lines. X.21 leased and circuit-switched lines are supported. Short hold mode is not available.

Capabilities include:

- Support for two lines using SDLC or X.25 communications types.

- Support for two high-speed X.25 or SDLC lines at up to 64,000 bps is supported.

- Two X.21 cables (20-foot) are provided that support the CCITT X.21/V.11 interface.

Select this subsystem if you need the minimum number of lines and do not anticipate growth in the number of lines in the future, or if your needs are primarily for high-speed lines.

Four-Line X.21 Subsystem (Feature 6234)

This feature is primarily offered in countries other than the United States and consists of a communications controller, adapters, and cables that support four lines. X.21 leased and circuit-switched lines are supported. Short hold mode is not available.

Capabilities include:

- Support for four lines using SDLC or X.25 communications type with a maximum of three X.25 lines running concurrently.

- Four X.21 cables (20-foot) are provided that support the CCITT X.21/V.11 interface at line speeds up to 19,200 bps.

Select this subsystem if you need a minimum number of lines currently but anticipate additional lines in the future.

Eight-Line X.21 Subsystem (Feature 6235)

This feature is primarily offered in countries other than the United States and consists of a communications controller, adapters, and cables that support eight lines. X.21 leased and circuit-switched lines are supported. Short hold mode is not available.

Capabilities include:

- Support for eight lines using SDLC or X.25 communications type with a maximum of three X.25 lines running concurrently.

- Eight X.21 cables (20-foot) are provided that support the CCITT X.21/V.11 interface at line speeds up to 19,200 bps.

Select this subsystem if you need the maximum number of lines for current and future requirements.

Two-Line V.35 Subsystem (Feature 6236)

This feature consists of a communications controller, adapter, and cables that support two lines.

Capabilities include:

- Support for two lines using bisynchronous, SDLC, or X.25 communications type.

- Support for two high-speed bisynchronous, X.25, or SDLC lines operating at up to 64,000 bps is supported.

- Two V.35 cables (20-foot) are provided that support the CCITT V.35 interface and the X.21 bis interface.

Select this subsystem if you need the V.35 interface and if your requirements are for high-speed (48,000 to 64,000 bps) lines. Also, this subsystem should be considered for locally connecting a System/38 or System/36 (equipped with a V.35 Adapter) with an AS/400 system.

Four-Line 232/V.24 & X.21 Subsystem (Feature 6237)

This feature is primarily offered in countries other than the United States and consists of a communications controller, adapters, and cables that support four lines. X.21 leased and circuit-switched lines are supported. Short hold mode is not available.

Capabilities include support for:

- Two lines using asynchronous or bisynchronous communications type (with the 232/V.24 cable) plus
- Two lines using SDLC or X.25 communications type (with the X.21 cable) or
- Four lines using SDLC or X.25 communications type (with the 232/V.24 and the X.21 cable) with a maximum of three X.25 lines running concurrently.

Two X.21 cables (20-foot) are provided that support the CCITT X.21/V.11 interface at line speeds up to 19,200 bps.

Two EIA 232/V.24 Enhanced cables (20-foot) are provided. They support:

- EIA 232-C and 232-D
- V.24/X.21 bis
- V.25 bis for serial autodial modems (smart modems)
- Loopback diagnostics for IBM modems
- Line speeds up to 19,200 bps

Select this subsystem if you need a minimum number of lines currently but anticipate additional lines in the future and if your needs require different interfaces to the network.

Eight-Line 232/V.24 & X.21 Subsystem (Feature 6238)

This feature is primarily offered in countries other than the United Stated and consists of a communications controller, adapters, and cables that support four lines. X.21 leased and circuit-switched lines are supported. Short hold mode is not available.

Capabilities include support for:

- Four lines using asynchronous or bisynchronous communications type (with the 232/V.24 cable) plus
- Four lines using SDLC or X.25 communications type (with the X.21 cable) or
- Eight lines using SDLC or X.25 communications type (with the 232/V.24 and the X.21 cable) with a maximum of three X.25 lines running concurrently.

Four X.21 cables (20-foot) are provided that support the CCITT X.21/V.11 interface at line speeds up to 19,200 bps.

Four EIA 232/V.24 Enhanced cables (20-foot) are provided. They support:

- EIA 232-C and 232-D
- V.24/X.21 bis
- V.25 bis for serial autodial modems (smart modems)
- Loopback diagnostics for IBM modems
- Line speeds up to 19,200 bps

Select this subsystem if you need the maximum number of lines for current and future requirements and if your needs require different interfaces to the network.

Token-Ring Local Area Network Subsystem (Feature 6240)

This feature consists of a controller, adapter, and cable that provides a single attachment to the IBM Token-Ring LAN. Adherence to the IEEE 802.2 and 802.5 standards is maintained. Support for the 4 million bps Token-Ring LAN is provided. Use of the token ring is the preferred method for locally interconnecting two AS/400 systems or an AS/400 system with a System/36.

Base Communications Subsystem

This subsystem is a standard feature for Models B30, B40, B50, and B60. It consists of a communications controller, adapter, and cables that support two lines. The first line is intended for use with electronic customer support. It is equipped with an EIA 232/V.24 Enhanced cable that is provided for attachment to an IBM 5853 or similar modem.

The second line is equipped with an EIA 232/V.24 Enhanced cable to be used at the customer's discretion. The EIA 232/V.24 Enhanced cable supports line speeds up to 19,200 bps. The base communications subsystem supports asynchronous, bisynchronous, SDLC, or X.25 communications type. The electronic customer support communications line for IBM service operates at 2400 bps using SDLC.

Five optional features available at time of manufacture only (not field-installable) may be added to the base communications subsystem to expand its capacity to a total of four or eight lines. The optional features are:

* Base Two-Line Expansion (Feature 6220)
* Base Six-Line Expansion (Feature 6221)
* Base Two-Line X.21 Expansion (Feature 6222)
* Base Six-Line X.21 Expansion (Feature 6223)
* Base Six-Line 232/V.24 & X.21 Expansion (Feature 6224)

Base Two-Line Expansion (Feature 6220)

This feature consists of an adapter and cables that provide an additional two communications lines when attached to the base communications subsystem, bringing the total number of lines to four. This feature is available only at the time the system is manufactured and may only be attached to the base communications subsystem.

When this feature is added to the base communications subsystem, the combined capabilities include:

* Support for four lines using asynchronous, bisynchronous, SDLC, or X.25 communications type
* A maximum of three X.25 lines operating concurrently

Two EIA 232/V.24 Enhanced cables (20-foot) are provided. They support:

* EIA 232-C and 232-D
* V.24/X.21 bis
* V.25 bis for serial autodial modems (smart modems)
* Loopback diagnostics for IBM modems
* Line speeds up to 19,200 bps

This feature should be selected if your current or future needs are not met by the two lines available on the base communications subsystem. It is only available with the initial order and cannot be installed in the field. It can only by installed at the

manufacturing plant. The Two-Line Expansion feature is mutually exclusive with the other expansion features that are offered for the base communications subsystem.

Base Six-Line Expansion (Feature 6221)

This feature consists of adapters and cables that provide an additional six communications lines when attached to the base communications subsystem, bringing the total number of lines to eight. This feature is available only at the time the system is manufactured and may only be attached to the base communications subsystem.

When this feature is added to the base communications subsystem, the combined capabilities include:

- Support for eight lines using asynchronous, bisynchronous, SDLC, or X.25 communications type
- A maximum of three X.25 lines operating concurrently
- A maximum of six bisynchronous lines operating concurrently

Six EIA 232/V.24 Enhanced cables (20-foot) are provided. They support:

- EIA 232-C and 232-D
- V.24/X.21 bis
- V.25 bis for serial autodial modems (smart modems)
- Loopback diagnostics for IBM modems
- Line speeds up to 19,200 bps

This feature should be selected if your current or future needs are not met by the two lines available on the base communications subsystem. It is only available with the initial order and cannot be installed in the field. It can only be installed at the manufacturing plant. The Six-Line Expansion feature is mutually exclusive with the other expansion features that are offered for the base communications subsystem.

Base Two-Line X.21 Expansion (Feature 6222)

This feature consists of an adapter and cables that provide an additional two communications lines when attached to the base communications subsystem, bringing the total number of lines to four. The X.21 lines use SDLC or X.25 communications type. This feature is available only at the time the system is manufactured and may only be attached to the base communications subsystem.

When this feature is added to the base communications subsystem, the combined capabilities include:

- Support for four lines using asynchronous, bisynchronous, SDLC or X.25 communications type
- A maximum of three X.25 lines operating concurrently
- A maximum of two asynchronous or bisynchronous lines (using the EIA 232/V.24 interface)

Two X.21 cables (20-foot) are provided. They support:

- CCITT X.21/V.11 interface
- SDLC and X.25 communications types

This feature should be selected if your current or future needs are not met by the two lines available on the base communications subsystem. It is only available with the initial order and cannot be installed in the field. It can only be installed at the manufacturing plant. The Two-Line X.21 Expansion feature is mutually exclusive

with the other expansion features that are offered for the base communications subsystem.

Base Six-Line X.21 Expansion (Feature 6223)

This feature consists of adapters and cables that provide an additional six communications lines when attached to the base communications subsystem, bringing the total number of lines to eight. The X.21 lines use SDLC or X.25 communications type. This feature is available only at the time the system is manufactured and may only be attached to the base communications subsystem.

When this feature is added to the base communications subsystem, the combined capabilities include:

- Support for eight lines using asynchronous, bisynchronous, SDLC, or X.25 communications type
- A maximum of three X.25 lines operating concurrently
- A maximum of two asynchronous or bisynchronous lines (using the EIA 232/V.24 interface)

Six X.21 cables (20-foot) are provided. They support:

- CCITT X.21/V.11 interface
- SDLC and X.25 communications type

This feature should be selected if your current or future needs are not met by the two lines available on the base communications subsystem. It is only available with the initial order and cannot be installed in the field. It can only by installed at the manufacturing plant. The Six-Line X.21 Expansion feature is mutually exclusive with the other expansion features that are offered for the base communications subsystem.

Base Six-Line 232/V.24 & X.21 Expansion (Feature 6224)

This feature consists of adapters and cables that provide an additional six communications lines when attached to the base communications subsystem, bringing the total number of lines to eight. The X.21 lines use SDLC or X.25 communications type. This feature is available only at the time the system is manufactured and may only be attached to the base communications subsystem.

When this feature is added to the base communications subsystem, the combined capabilities include:

- Support for eight lines using asynchronous, bisynchronous, SDLC, or X.25 communications type
- A maximum of three X.25 lines operating concurrently
- A maximum of five asynchronous or bisynchronous lines (using the EIA 232/V.24 interface)

Three X.21 cables (20-foot) are provided. They support:

- CCITT X.21/V.11 interface
- SDLC and X.25 communications type

Three EIA 232/V.24 Enhanced cables (20-foot) are provided. They support:

- EIA 232-C and 232-D
- V.24/X.21 bis
- V.25 bis for serial autodial modems (smart modems)
- Loopback diagnostics for IBM modems

- Line speeds up to 19,200 bps

This feature should be selected if your current or future needs are not met by the two lines available on the base communications subsystem. It is only available with the initial order and cannot be installed in the field. It can only be installed at the manufacturing plant. The Six-Line 232/V.24 & X.21 Expansion feature is mutually exclusive with the other expansion features that are offered for the base communications subsystem.

EIA 232/V.24 Cable (Feature 6229)

This cable should only be ordered when the connection is to a modem that has the Signal Quality Detect feature or to a modem eliminator. Modems that have the Signal Quality Detect feature are older models. Since all current IBM and non-IBM modems do not have the Signal Quality Detect feature, they do not require this cable.

Communications Configuration Guidelines for the 9406 System Unit

The following is a set of guidelines that can be used in determining the number of communications lines each 9406 System Unit Model B30, B40, B50, or B60 can support. The HONE AS/400 Configurator should be used to determine exact configurations.

Lines per Model

- The Model B30 supports a total of 16 lines.

- The Model B40 supports a total of 32 lines.

- The Model B50 supports a total of 32 lines.

- The Model B60 supports a total of 32 lines.

- Each Model B30 through B60 can support one or two Token-Ring LAN attachments operating at 4 million bits per second.

Aggregate Data Rate

- Each communications subsystem has an aggregate rate of 153,600 bps.

- When determining aggregate data rates, full-duplex lines using X.25 or asynchronous support need to be doubled.

Token-Ring Local Area Network

Each Model B30 through B60 supports one or two attachments to the IBM Token-Ring Local Area Network operating at 4 million bits per second.

Common 9406 System Unit Communications Information

- Switched and nonswitched point-to-point and multipoint lines are supported.

- There is no maximum number of communication subsystems. The number of subsystems available for each model is dependent on the model and number of card slots available, plus the lines per model limitation described above.

- Serial autodial modem support is provided on the base communications subsystem and the Two-, Four-, and Eight-Line Subsystems that use the EIA 232/V.24 Enhanced cables. The V.25 bis command set is supported for asynchronous and SDLC call-related commands.

  Serial autodial modems and one communications line are used to establish a switched connection. The System/36 and System/38 use the EIA 366/V.25 Automatic Calling Equipment and two communications lines for autocall. This two-line support is not available on the 9406 System Unit. Additionally, the serial autodial support on the 9406 System Unit is available only on asynchronous and SDLC lines; bisynchronous and X.25 lines are not supported.

- The concurrent operation of an asynchronous line and an X.25 line or a bisynchronous line and an X.25 line is not supported on any of the subsystems.

- X.21 networks must be compatible with IBM's implementation of X.21 as described in *IBM Implementation of X.21 General Information Manual*, GA27-3287.

- X.25 communications on the 9406 System Unit will provide the capability to attach to packet-switched data networks having interfaces complying with recommendation X.25 (1984) of the International Telegraph and Telephone

Consultative Committee (CCITT). This interface support is in conformance with the functional description contained in IBM's *General Information Manual, The X.25 Interface for Attaching SNA Nodes to Packet-Switched Data Networks,* GA27-3345. Attachment to an X.25 network is via a nonswitched line through either an X.21, V.24/X.21 bis, or V.35/X.21 bis interface.

Some X.25 guidelines are listed below:

— X.25 circuits can be permanent or switched virtual circuits.

— Concurrent primary/secondary SNA (SDLC equivalent) operation with one X.25 subscription.

— Maximum packet size of 64, 128, 256, 512, and 1,024 octets (bytes) can be specified.

— Modulo 8 format at the HDLC link level, Modulo 8, and 128 formats at the packet level.

— Support of all appropriate logical link control communications types for IBM SNA nodes operating in X.25 networks follow descriptions in *IBM General Information Manual,* GA27-3345 and SNA-0025. These include the QLLC and the enhanced LLC for improved end-to-end error recovery process handling.

Communications Types

Use the following descriptions when choosing the type of communications line for your network. These descriptions apply to all models of the AS/400 system.

Asynchronous

- Block mode support (no character mode support)
- Seven to eight bits per character
- EBCDIC on ASCII data
- One start bit per character
- One or two stop bits per character
- X-ON and X-OFF flow control
- Full duplex and half duplex
- Two-way simultaneous with full duplex
- Autoanswer
- Up to 19,200 bps

BSC

- Point-to-point
- Multipoint tributary
- Two-way alternating (cannot transmit and receive simultaneously)
- Transparency
- EBCDIC and ASCII data
- X.21 bis connection via V.35 or EIA 232/V.24

SDLC

- Primary, secondary, or negotiable station
- Point-to-point
- Multipoint control and tributary
- Two-way alternating (cannot transmit and receive simultaneously)
- Normal response mode (NRM) modulus 8
- X.21 leased circuit and circuit switched
- Up to 64,000 bps
- Autoanswer
- Supports V.25 bis single-line autodial

Token-Ring 802.5

- 802.5 and 802.2 standards
- Frame size of 2K bytes
- Ring error monitor (REM)

X.25

- 1980 and 1984 CCITT X.25
- Multiple X.25 virtual circuits (permanent PVC or switched SVC)
- Error recovery for X.25 network problems
- Collect tariff-related statistics for data packets
- Logical link control
  - Qualified (QLLC)
  - Enhanced (ELLC)

- Packet-level control
  - Up to 16 virtual circuits per line (16 simultaneous connections)
  - Packet sizes of 64, 128, 256, 512, and 1,024 bytes
- HDLC LAP-B (High-level Data Link Control – Link Access Protocol Balanced mode) Protocol
  - Point-to-point nonswitched
  - Two-way simultaneous (full duplex)
  - X.21 and X.21 bis
- No limit to the number of remote stations that can be configured

Glossary

advanced peer-to-peer networking (APPN). Data communications support that routes data in a network between two or more APPC systems that are not directly attached.

advanced program-to-program communications (APPC). Data communications support that allows programs on an AS/400 system to communicate with programs on other systems having compatible communications support. APPC is the AS/400 method of using the SNA LU session type 6.2 protocol.

asynchronous. (1) Not occurring in a regular or predictable pattern. (2) Without regular time relationship.

automatic answer. In data communications, a line type that does not require operator action to receive a call over a switched line. Contrast with *manual answer*.

automatic call. A feature that permits a station to connect with another station over a switched line without operator action. Contrast with *manual call*.

automatic call unit. A common carrier device that allows the AS/400 system to automatically dial a remote location.

binary synchronous communications (BSC). A data communications line protocol that uses a standard set of transmission control characters and control character sequences to send binary-coded data over a communications line. Contrast with *synchronous data link control (SDLC)*.

BSCEL (binary synchronous communications equivalence link) support. The system support that provides BSC communication with another AS/400 system and many other BSC computers and devices.

common carrier. In data communications, any government-regulated company that provides communications services to the general public. Examples are: the government-regulated telephone and telegraph companies in the United States, the General Post Office in the United Kingdom, the Bundespost in Germany, and Nippon Telephone and Telegraph Public Corporation (NTT) in Japan.

communications adapter. A part that electrically or physically connects a computer or device to a data communications network.

communications data format. The output data received from the host system is left the same as it was received (either compressed, or data cut off at the end, or both).

communications line. The physical link (such as a wire or a telephone circuit) that connects one or more work stations to a communications control unit, or connects one control unit to another. Contrast with *data link*.

control station. The controlling or primary computer on a multipoint line. The control station controls the sending and receiving of data.

data circuit-terminating equipment (DCE). The equipment installed at the user's premises that provides all the functions required to establish, maintain, and end a connection, and the signal conversion and coding between the data terminal equipment and the line. See also *data terminal equipment (DTE)*.

data link. The physical connection (communications lines, modems, controllers, work stations, and other communications equipment), and the rules (protocols) for sending and receiving data between two or more locations in a data network. Contrast with *communications line*.

data terminal equipment (DTE). That part of a data link that sends data, receives data, and provides the data communications control function according to protocols.

default. A value automatically supplied or assumed by the system or program.

destination service access point (DSAP). A logical address that allows a system to route data from a remote device to the appropriate communications support.

device description. Information describing a particular device that is attached to the system. The system-recognized identifier for the object type is *DEVD.

device emulation. The programming that allows one device to appear to the user or to a system as another device. See also *5250 emulation* and *3270 device emulation*.

device selection character. The control character that is sent to a receiving system or to a device connected to a receiving system to select that device to receive the output.

DSAP. See *destination service access point (DSAP)*.

duplex. Pertains to communications in which data can be sent and received at the same time. Contrast with *half-duplex*.

enhanced logical link control (ELLC). A communications protocol that allows the transfer of data link

control information between two adjacent SNA nodes that are connected through an X.25-based packet-switching data network. This protocol enhances error detection and recovery. Contrast with *physical services header* and *qualified logical link control (QLLC)*.

extended binary-coded decimal interchange code (EBCDIC). A coded character set of 256 eight-bit characters.

finance device. A device, such as the 4700 Finance Communications System devices and the 3694 Document Processor, that performs functions specifically related to the finance industry. The 3180, 3270, and 5250 work stations are not finance devices.

half-duplex. Pertaining to data communications that can be sent in only one direction at a time. Contrast with *duplex*.

host system. The primary or controlling computer in a communications network. See also *control station*.

line description. The description of a communications line to the system. The system-recognized identifier is *LIND.

local. Pertaining to a device, system, or file that is connected directly or read directly from your system, without the use of a communications line. Contrast with *remote*.

logical link control. See *enhanced logical link control*, *qualified logical link control (QLLC)*, and *physical services header*.

logical unit. One of three types of network addressable units that serve as a port through which a user accesses the communications network. Abbreviated LU. See also *physical unit*, and *system services control point (SSCP)*.

LU. See *logical unit*.

manual answer. In data communications, a line type that requires operator actions to receive a call over a switched line. Contrast with *automatic answer*.

manual call. In data communications, a line type requiring operator actions to place a call over a switched line. Contrast with *automatic call*.

modem. A device (modulator-demodulator) that converts data from the computer to a signal that can be sent over a communications line, and converts the communications signal to data for the computer.

modulo check. A calculation performed on values entered into a system by an operator. This calculation is designed to detect most common keying errors. See also *modulus*.

modulus. A number, such as a positive integer, in a relationship that divides the difference between two related numbers without leaving a remainder. For example, 9 and 4 have a modulus of 5 (9 - 4 = 5, 4 - 9 = -5, and 5 divides both 5 and -5 without leaving a remainder).

multipoint line. A line or circuit connecting several stations. Contrast with *point-to-point line*.

nonswitched line. A connection between computers or devices that does not have to be made by dialing. Contrast with *switched line*.

packet switching. The act of sending and routing packets from source to destination based on information contained in their heading record.

packet-switching data network (PSDN). A communications network that uses packets to send data.

parameter. (1) A value supplied to a command or program that either is used as input or controls the actions of the command or program. (2) (COBOL) A variable or a constant that is used to pass values between calling and called programs.

peer-to-peer networking. See *advanced peer-to-peer networking (APPN)*.

permanent virtual circuit (PVC). The permanent virtual circuit establishes the identity of the called party within the network services contract. There is no need to identify who is being called when.

physical services header. One of three X.25 protocols used by IBM systems network architecture (SNA) data terminal equipment (DTE). Physical services header provides address services for physically connected systems or devices. Contrast with *enhanced logical link control* and *qualified logical link control (QLLC)*.

point-to-point line. A communications line that connects a single remote station to a computer. Contrast with *multipoint line*.

primary system. The system that controls the data link in a communications session.

prompt. (1) A reminder or a displayed request for information or user action. The user must respond to allow the program to proceed. (2) A list of values or a request for information provided by the system as a reminder of the type of information or action required.

protocol. A set of rules controlling the communication and transfer of data between two or more devices in a communications system.

PSDN. See *packet-switching data network (PSDN)*.

qualified logical link control (QLLC). A logical link control protocol that allows the transfer of data link control information between two adjacent SNA nodes that are connected through an X.25-based packet-switching data network. Contrast with *enhanced logical link control*.

Recommendation X.25. A document, CCITT Recommendation X.25, that outlines standards for the connection of processing equipment to a packet-switching data network.

remote. Pertaining to a device, system, or file that is connected to another device, system, or file through a communications line. Contrast with *local*.

reverse charging. A packet-switching data network optional facility, which allows the data terminal equipment (DTE) to request that the cost of a communications session be charged to the DTE that is called. See also *optional user facilities*.

SNA upline facility (SNUF). The communications support that allows the AS/400 system to communicate with CICS/VS and IMS/VS application programs on a host system. For example, DHCF communicates with HCF and DSNX communicates with NetView Distribution Manager (NDM).

start-of-header (SOH) character. In binary synchronous communications, the transmission control character indicating that the information that follows is a header.

start-of-text (STX) character. In binary synchronous communications, a transmission control character used to begin a logical set of records that will be ended by the end-of-text character or end-of-transmission-block character.

switched line. In data communications, a connection between computers or devices that is established by dialing. Contrast with *nonswitched line*.

Switched Network Backup. A feature of the modem that allows a nonswitched line to be used alternatively as a switched line or allows a switched line to be used as a nonswitched line depending on the characteristics of the modem. Abbreviated SNBU.

switched virtual circuit (SVC). A circuit established to the called party when the calling party requests a connection. Contrast with *permanent virtual circuit (PVC)*.

SYN. See *synchronization (SYN) character*.

synchronization (SYN) character. In binary synchronous communications, the transmission control character that provides a signal to the receiving station for timing the characters received.

synchronous data link control (SDLC). (1) A form of communications line control that uses commands to control the transfer of data over a communications line. (2) A communications discipline conforming to subsets of the Advanced Data Communication Control Procedures (ADCCP) of the American National Standards Institute (ANSI) and High-Level Data Link Control (HDLC) of the International Standards Organization (ISO), for transferring synchronous, code-transparent, serial-by-bit information over a communications line. Transmission exchanges may be duplex or half-duplex over switched or nonswitched lines. The configuration of the connection may be point-to-point, multipoint, or loop. Compare with *binary synchronous communications (BSC)*.

system services control point identifier. See *SSCP ID*.

system unit. A part of a computer that contains the processing unit, and may contain devices such as disk units and tape units.

transparency. See *transparent text mode*.

transparent data. Data that can contain any hexadecimal value.

transparent text mode. In binary synchronous communications, a method of transmission in which only transmission control characters preceded by the DLE control character are processed as transmission control characters.

virtual circuits. A logical, rather than a physical connection that is established and controlled by a managing network in a packet-switching communications environment. See also *permanent virtual circuit (PVC)* and *switched virtual circuit (SVC)*.

voice-grade telephone line. A telephone line that is normally used for voice communications. The line requires a modem for data communications.

3270 device emulation. The operating system support that allows an AS/400 system to appear as a 3274 Control Unit in a BSC multipoint network or SNA/SDLC network. See also *3270 display emulation* and *3270 printer emulation*.

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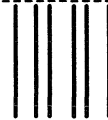Company or
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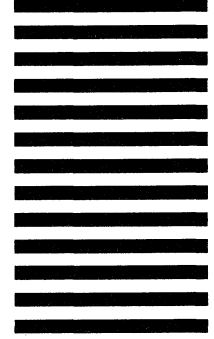Fold and Tape   **Please do not staple**

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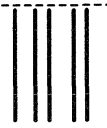
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